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ABSTRACT

This document presents a case and guide for a "Space/Time-Preference" (S/T-P) higher learning situation in which educational programs, plans, and proposals seek to promote learning beyond campus classrooms, while many of them are even flexible as to when and how a student learns. The purpose of the guide is to focus on the long-range problems and possibilities associated with the development of S/T-P higher learning, while raising fundamental questions for further investigation. The overlapping areas of concern deal with noncredited learning, the organizational structure or the new institutions and programs, the new technologies that will greatly enhance the possibilities for S/T-P learning, the variation in present S/T-P programs, institutional accreditation, equity, personnel, and relationships with the lower system. To summarize these problems and possibilities, 6 possible systems are sketched: the Extended Campus System, the Extended Credit System, the Variegated Extended Credit System, the Learner-Centered System, the Diminished Campus, and the Empty Campus. Also included in the document are an exploration of external degree programs, and a selected annotated bibliography on higher education planning. (Author/HS)

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BEYOND THE CARNEGIE COMMISSION:
A POLICY STUDY GUIDE TO SPACE/TIME/CREDIT-PREFERENCE HIGHER LEARNING

by

Michael Marien

With an Annotated Bibliography by the Author
and an Exploration of External Degree Programs
by David E. Mathieson

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BEYOND THE CARNEGIE COMMISSION:
A POLICY STUDY GUIDE TO
SPACE/TIME/CREDIT-PREFERENCE HIGHER LEARNING

I.

PROLOGUE: HOW MANY STUDENTS? HOW MANY PLACES?

In its October 1971 interim report, *New Students and New Places*, the Carnegie Commission on Higher Education summarized "The Future of Higher Education: The Questions to be Examined" as follows:[1]

> The next three decades are likely to be a period of substantial innovation and change in the organization and structure of higher education . . . Along with the continuation of recent trends, we anticipate a new type of development as perhaps the predominant characteristic of the last three decades of the present century--a movement away from participation in formal institutional higher education in the years immediately following high school toward a more free-flowing pattern of participation spread over a broader span of years . . . This changing pattern of participation in higher education should . . . be encouraged by changes in degree structure; by changes in employer selection policies; and by the development of open universities, external degree systems, and other innovations designed to stimulate a more flexible pattern of higher education experience. (p.39)

This analysis, in what the Commission calls its "keystone report,"[2] is accommodatingly plausible, and the subsequent questions

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[1] Carnegie Commission on Higher Education. *New Students and New Places: Policies for the Future Growth and Development of Higher Education.* A Report and Recommendations. N.Y.: McGraw-Hill, October 1971.

[2] Carnegie Commission on Higher Education. *The Future of Higher Education: How to Get There From Here.* Berkeley: Carnegie Commission on Higher Education, 1972, p. 7. This 31 page catalog lists the various publications of the Commission through Spring 1972. Chairman Clark Kerr estimates a total of 18-20 reports and about 50 specialized research studies before the Commission submits its final report in June 1973.

that are raised are indeed the "questions to be examined." But it is the order in which the questions are raised and addressed, that creates severe reservations.

The first two questions that are raised (p.40), and subsequently answered in Chapters 4 and 5, have to do with enrollment increase primarily in the college age population, and the impact on these estimates of new students if the Commission recommendations and other influences are taken into account.

The next two questions, subsequently answered in Chapters 6 and 7, deal with the "New Places" response to anticipated enrollment increases through the growth of existing campuses and the development of new ones.

The final question, "In planning for the future, to what extent should we encourage new forms and patterns of higher education?" is explored in Chapter 8, with the concluding recommendation that "state and federal government agencies, as well as private foundations, expand programs of support for the development of external degree systems and open universities along the lines of programs initiated within the last year or so." (p.117)

Had this final question been addressed first--and addressed in far greater depth--the answers to the first four questions might be substantially different. The new forms and patterns of higher education referred to in this paper as "space/time-preference" higher learning[3]

[3] "Space/Time-Preference" (S/T-P) Higher Learning is equivalent to "extramural programs" as used by the Carnegie Commission in *The Fourth Revolution*, and "Non-Traditional Study" as embodied in the name of the Commission on Non-Traditional Study. Stephen K. Bailey suggests "space and time flexible" higher learning, and I have used "space-free/time-free" and "external credit" in previous papers to describe this collectivity of new programs. "Space/Time-Preference" highlights the virtues of these programs--particularly the preference that is now afforded to the individual learner--whereas the nomenclature used by the two commissions suggests little about the new forms and patterns of learning. Credit-preference is not yet a feature of these new programs, but, as subsequently suggested, there is an opportunity to add this important element and "Space/Time/Credit-Preference," first suggested by Mary Lou Warner, may become the most apt labeling in the future.

may very well constitute a significant proportion of the universe to be known as "higher education" in forthcoming decades. In fact, the Commission announces that "we anticipate a new type of development as perhaps the predominant characteristic of the last three decades," and state and federal agencies are encouraged to further this development.

If the new forms and patterns of higher education are successful, they could very well develop a capacity that would totally obviate the need for "New Places"--estimated by the Carnegie Commission as 80-105 new comprehensive colleges and 175-235 new community colleges. This basic dualism between construction of buildings for on-campus services and operating costs of non-campus services is mentioned in passing in a subsequent Commission report,[4] and the recommendation for new places may very well be revised before the Commission submits its final report in June 1973.

But there is a further and even more fundamental difficulty concerning "New Students." The Carnegie Commission has underscored the importance of this matter by stating that "knowing how many students American higher education will be expected to serve in various types of colleges and universities in the coming decades is absolutely fundamental to intelligent planning."[5] The forecasted enrollments based on recommended reforms of the Commission are roughly characterized as a "Go-Stop-Go" situation: 12.5 million in 1980, 12.3 million in 1990, and 16.0 million in 2000. But this forecast is based on a system of traditional campuses serving the traditional college-age student, and does not consider how the new forms and patterns of higher learning might significantly expand the parameters of higher education by greatly encouraging the participation of post-college-age learners. Nor does it examine adult learning needs in the forthcoming decades and the various proposals for changing tax laws and/or relaxing Social Security retirement rules that might greatly enhance adult

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[4] Carnegie Commission on Higher Education. *The Fourth Revolution: Instructional Technology in Higher Education.* A Report and Recommendations. N.Y.: McGraw-Hill, June 1972.

[5] *The Future of Higher Education*, p. 7.

participation in higher education. The Commission's "reasonable estimate" of 250,000-350,000 additional adults by 1980 (reduced to 80,000 to 130,000 FTE enrollments),[6] in addition to an estimated 500,000-600,000 additional adults by 1990 and one million by 2000, may therefore grossly understate the number of "New Students."

In contrast, Alpert and Bitzer, describing the potential utilization of their computer-based PLATO IV system that will be fully operational in this decade, estimate for their system alone an annual clientele for continuing adult education of 15 million (which in full-time equivalents would be reduced to several million).[7] Perhaps this is an out-of-the-hat figure, but such an estimate appears no less reasonable than that of the Carnegie Commission. The Commission itself, in recommending that extramural higher education programs should be available to most Americans by 1980, argues that these programs will "be able to serve--and undoubtedly will attract--many thousands of learners who are not counted in the normal estimates for conventional colleges and universities" (*The Fourth Revolution*, p.92).

It is difficult to measure the "market" for adult learning, but if enrollment estimates are "absolutely fundamental to intelligent planning," one might hope for a more serious attempt to cope with this realm of high uncertainty. In any event, we cannot "know" the future enrollment level, but can only sketch out various levels that are possible and desirable. The bravado of projecting enrollments to the year 2000, based on a normal system that will surely be drastically changed, can hardly be seen as a hallmark of intelligent planning. Where there is high uncertainty, it is preferable to first describe the condition, rather than taking refuge in quantitative statements

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[6] *New Students and New Places*, pp.58-59. An excellent critique of this traditional method of enrollment forecasting that ignores social changes is provided by Ted R. Vaughan and Gideon Sjoberg, "The Politics of Projection: A Critique of Cartter's Analysis," *Science*, 117: July 14, 1972, pp. 142-147.

[7] Daniel Alpert and Donald L. Bitzer, "The World After PLATO IV: Implications of Computer-Based Systems on Education of the Future," in House Committee on Education and Labor, *Alternative Futures in American Education*. Appendix 3 to Hearings on H.R. 3606, Jan. 1972, p.176.

that avoid the issue of the number and nature of places and students that are possible and desirable.

* * *

The subsequent discussion goes beyond the Carnegie Commission, describing the new forms and patterns of higher learning as far more variegated than recognized by the Commission, generally desirable for many reasons, and consonant with societal trends.

The thrust of this exploration can be neatly summarized by building upon the title of the essay *Any Person, Any Study*, by the Commission's in-house critic, Sir Eric Ashby.[8] Ashby's essay is described by the Carnegie catalog as going "beyond short-run solutions and political expediency to challenge some of our basic assumptions about higher education."[9] The challenge is mild, though; *Any Person, Any Study* (taken from the unfilled promise of the university founded by Ezra Cornell) only deals with college age persons and the traditional specialist-generalist debate. Not only should "Any Person, Any Study" be fully considered, but also "Any Time, Any Place." And, to counter Ashby's paternalistic assumption about learning that one is "given" higher education,[10] it is of fundamental importance that we should consider how individuals "take" an education: that is, how and what they choose to learn.

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[8] Eric Ashby. *Any Person, Any Study: An Essay on Higher Education in the United States*. First in a Series of Essays Sponsored by The Carnegie Commission on Higher Education. N.Y.: McGraw-Hill, 1971. The attempt to obtain a foreign observer is laudible, but Ashby, aside from being a member of the Commission, is immersed in the assumptions of the global "educator culture." Anyone so immersed in such a professional sub-culture (whether it is education, health, penology, science, agriculture, or religion) is seldom able to attain a fresh outsider's perspective.

[9] *The Future of Higher Education*, p.18.

[10] *Any Person, Any Study*, section entitled "Who Should Be Given Higher Education," pp.24-33.

Without the total consideration of any person, any study, any time, and any place, the Carnegie Commission is not fulfilling its "mission of obtaining information, analyzing issues, and advising . . . on directions for the future."[11] By failing to perform this task, new commissions will undoubtedly be created as unacknowledged problems and unanticipated developments create new crises in American higher education, recreating the oft-encountered patterns of reactive response, rather than anticipatory shaping.

[11] *The Future of Higher Education*, p.1.

II.

THE POTENTIAL OF SPACE/TIME/CREDIT-PREFERENCE HIGHER LEARNING

The new development acknowledged by the Carnegie Commission--"open universities, external degree systems, and other innovations designed to stimulate a more flexible pattern of higher education experience"--is still poorly defined and understood. This is largely due to the failure of anticipation and the lack of any mechanism for reporting the wide array of plans, studies, and proposals that have been developed since 1970. There is a considerable variation in the administrative structures, the flexibility of programs, and the motivations for initiating these new arrangements for learning. Perhaps the only similarity is that all of the programs, plans, and proposals seek to promote learning beyond campus classrooms, while many of them are flexible as to when and how a student learns. And thus this new development is referred to here as "Space/Time-Preference" (S/T-P) higher learning.

Viewed in the context of societal evolution, many (but not all) of these S/T-P programs provide strong evidence of "the basic, long-term multifold trend in education"--the transition from batch-process, age-graded, and closed teaching systems to flexible, individualized, multi-age, open learning systems.[12] In turn, this development is interrelated with the major transition from a linear industrial society of well-defined spaces and ordered blocks of time to a post-linear, post-industrial society of multiple, overlapping, blurred, and variable utilizations of space and time.

This policy study guide presumes that the reader has some familiarity with at least the visible programs, such as England's Open University, the External Degree program and Empire State College in New

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[12] Michael Marien, "The Basic, Long-Term Multifold Trend in Education," *The Futurist*, IV:5, Dec. 1970.

York State, the University-Without-Walls consortium, and the College-Level Examination Program of the Educational Testing Service. An annotated bibliography is provided as an appendix to afford an overview of the relevant literature that is presently available.

The purpose of this guide is to focus on the long-range problems and possibilities associated with the development of S/T-P higher learning, while raising fundamental questions for further investigation. The overlapping areas of concern deal with noncredited learning, the organizational structure of the new institutions and programs, the new technologies that will greatly enhance the possibilities for S/T-P learning, the variation in present S/T-P programs, institutional accreditation, equity, personnel, and relationships with "the lower system." To summarize these problems and possibilities, six possible systems are sketched: The Extended Campus System, The Extended Credit System, The Variegated Extended Credit System, The Learner-Centered System, The Diminished Campus, and The Empty Campus. Although the time frame under consideration covers the next twenty years, many of the possible developments described here could easily take place within the next five or ten years.

A. Credit-Preference Learning: A Hidden Keystone?

Before discussing the S/T-P plans and programs that presently exist--all of which are designed to stimulate learning for credit or to bestow credit for that which has already been learned--a fundamental issue must be raised. Is it a necessary function of educating institutions to acknowledge learning with credit and credentials? Many educators see learning and credentialling as inseparable. The public face of institutions is that they do indeed promote learning, and the public itself has come to see institutions as the major place for learning--if not the only place where one learns. But credentialling often impedes learning. In fact, we have become a credentialling society, with attainment of diplomas (but not necessarily any meaningful or lasting learning) serving as a fundamental determinant of social status and economic opportunity. Thus, many "educational" issues are really issues dealing with social stratification and reducing inequalities

of opportunity to attain credentials--as evident from the major concerns of the Carnegie Commission.

At the same time, we live in an increasingly ignorant society, where learning needs as workers, citizens, and parents may well be outdistancing attainments.[13] For many years, adult educators have advocated lifelong learning, and a learning society is envisioned by many contemporary social thinkers as both necessary and desirable.[14] Are these learning needs to be satisfied by more courses, credits, and credentials, or is there a more effective, efficient, and humane approach to promoting learning which can avoid the dysfunctions of credentialism?

These questions are inspired by a series of studies conducted over the past seven years by Allen Tough and a number of students and colleagues at the Ontario Institute for Studies in Education in Toronto. Through an elaborate depth interview procedure, Tough has attempted to find out how people learn in real life. In a 1970 study reported in *The Adult's Learning Projects*,[15] it was found that all but one of the 66 interviewees had conducted at least one "learning project" in the previous year, with a median of 8 projects totalling 700 hours of effort. Only 0.7% of all learning projects were for any kind of credit, and 68% of these projects were totally planned by the learner himself, using both human and non-human resources.

The import of these studies is that if less than 1% of real-life learning effort is associated with credit and credentials, then programs designed to result in credit and credentials may not be meeting actual learning needs of people.

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[13] Michael Marien, "The Discovery and Decline of the Ignorant Society, 1965-1985" in Thomas Green (ed.), *Educational Planning in Perspective*. Guildford, Surrey, England: Futures-IPC Press, Fall 1971.

[14] e.g., Torsten Husén. *Present Trends and Future Developments in Education: A European Perspective*. The Peter Sandiford Memorial Lectures. Toronto: Ontario Institute for Studies in Education, Occasional Papers, No. 8, 1971. An excellent and succinct overview of future studies and education at all levels.

[15] Allen Tough. *The Adult's Learning Projects: A Fresh Approach to Theory and Practice in Adult Learning*. Toronto: Ontario Institute for Studies in Education, 1971.

To counter this assertion, it might be argued that "serious" learning takes place in institution-sponsored courses for credit, while self-directed learning is trivial in content and quality of outcome. But, despite the vast quantity of modern educational research, there is little or no work that even attempts to answer this question (let alone work that provides solid evidence). The vast quantity of research on the advantages of a college education, much of it summarized in *A Degree and What Else?* by Stephen B. Withey for the Carnegie Commission,[16] fails to control for individual differences in skills and knowledge before entering college, socio-economic advantages accruing to the college graduate as a result of his degree rather than a result of his learning, learning as a result of extra-curricular activities while at college, and self-directed learning that occurs among non-college students. Although Withey acknowledges some of these possible biases and calls for more research, the book could be seen by some as a rationalization for the existing system.

It might also be argued that some of this not-for-credit learning could be transferred to credited programs, if such programs were available to the learner. But is credit always desired? Much self-directed learning may be inhibited simply because of inadequate resources and lack of confidence. Tough, for example, found that "few people actually call their learning projects by that name; many do not even apply the term learning to their efforts." (p.14)

Indeed, the initial response to inquiry about self-planned learning was often found to be self-deprecating. But once their behavior was identified as "learning," the interviewees were eager to recall their experiences--and their difficulties in securing help which resulted in frustration, anger, confusion, procrastination, and diminished enthusiasm. Tough concludes that

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[16] Stephen B. Withey et. al. *A Degree and What Else? A Review of the Correlates and Consequences of Higher Education.* Prepared for the Carnegie Commission on Higher Education. N.Y.: McGraw-Hill, 1971.

> Many persons would welcome more and better help with their self-planned learning . . . Inadequate help results in countless wasted hours, inappropriate projects, and inefficient methods. Because of the lack of available help, the person may not even start the learning project in the first place. Yet, without learning, how can he deal effectively with his job, home, family, recreational activities, and finances? (pp.104, 115)

To his credit, Tough has an unyielding faith in the ability of many--if not all--people to direct their own learning, if they are given adequate help. To further this condition, he offers many recommendations, including major changes in educating institutions to develop greater competency in self-directed learning, de-emphasizing credited learning in schools and colleges, better resources for independent learning (such as learner-oriented indexes, reviews, and bibliocritiques), and more human help in the form of learning consultants, helpers, liaison persons, counselors, guides and/or tutors sponsored by new bureaus set up by city governments, boards of education, or voluntary agencies. Some of these recommendations are not unlike the learning clinics or informal colleges, as advocated in the first Newman Report.[17]

These observations and recommendations are by no means a trivial matter. To the contrary, they aim at the heart at what may well be the fundamental issue in determining the future of education at all levels: is education to be organized around institutions, credit, and credentials (any person and any study in acceptable situations), or is education to be organized around learners as an optimal system for distributing knowledge and encouraging its utilization (any person, any study, any time, any place, any method--and for any purpose of the learner)? This issue can also be seen as a matter of power in the process of knowledge dissemination and even the choice of words bear heavy connotations, for it is a matter of viewing teachers and students in a vertical relationship vs. helpers and learners in an essentially lateral relationship of equals. The resolution of this issue will not

[17] *Report on Higher Education*. Washington: U.S. Department of Health, Education, and Welfare, March 1971, p. 71. The Task Force preparing this report was headed by Frank Newman.

only serve to fundamentally determine the nature of future educational institutions, but will also serve in large part to determine the type of society that we will have. Needless to say, this question deserves the most serious consideration.

Yet, paradoxically, it is difficult to approach this question because of unquestioned assumptions and established patterns of thinking among both educators and critics.[18] Ivan Illich, in his well-known volume *Deschooling Society*, and Everett Reimer (Illich's colleague at CIDOC), in his less known volume *School is Dead*,[19] have almost fingered this keystone question of organization for promoting learning, but they were somewhat off-base by attacking schools, rather than learning for credit. In addition to drowning themselves in their revolutionary rhetoric, they fail to deal with the problem of excellence and credentials by assuming that the problem will not exist in their idealized convivial egalitarian society. Ironically, the followers of Illich and Reimer are not the poor, but the upper-middle class counter-culture and a few older radicals who envision an

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[18] It may be helpful to relate my own difficulties in breaking the mind set that all education--or the most important education at least--should be for credit. Although the pieces of the question have been played with for several years--studying the evolving educational system, educational interest groups, the difficulties with credentialism and alternative modes of social selection--the question itself (if indeed it is the correct one) had eluded me until now. In a January 1971 working paper, the critical system break was defined as "external credit." In a September 1971 working paper, I focused on Space-Free/Time-Free institutions as the critical development, but it is now clear that this development will not necessarily prove to be a blessing. Although numerous comments were received on my September working draft, most of my critics failed to help correct my fundamental oversight. In various indirect ways, however, I would like to acknowledge the prodding by Allen Tough, Robert Theobald, David Mathieson, and Bertram Gross. It is hoped that a succinct phrasing of the question will help others to understand it, although it must be confessed that I am in a position to entertain the question (hopefully with fairness!), whereas others, with a lifetime of professional investment in the education-for-credit system, as well as the individual acculturation that we all are burdened with, may have considerably greater difficulty in surmounting the barriers to understanding.

[19] Ivan Illich. *Deschooling Society*. N.Y.: Harper & Row, 1971.
Everett Reimer. *School is Dead*. N.Y.: Doubleday, 1971.

instant utopia by abolishing a hated symbol from which all troubles seemingly stem: the school. (Curiously, Illich and Reimer themselves run a school in Cuernavaca, Mexico where their affluent followers can vacate.) Numerous critics have yet to build upon Illich and Reimer, and only compound the confusion by defensive postures that ignore the metaphorical power of the "deschooling" argument.[20]

The Carnegie Commission has yet to examine the question of optimal forms for promoting learning and the distribution of knowledge. The same oversight, unfortunately, afflicts the Commission on Non-Traditional Study which, being sponsored by the College Entrance Examination Board and the Educational Testing Service, has appeared to confine its significant but limited inquiry to new arrangements for bestowing credit and credentials. If so, the Commission would be more accurately described as the Commission on Non-Traditional Credit and Credentials, for mankind has always learned without benefit of institutions, and even today, despite our credentialling society, there are still more man-hours devoted to credit-free learning than to credited learning. In fairness, however, the difficulty of stepping outside of the culture of higher education must again be remarked upon--for the hundreds of recent books on educational reform fail to break the space and time assumptions, let alone the education for credit assumptions.[21]

The credit assumption will not necessarily be broken by the system evolution that is taking place. But the path of this evolution--toward flexibility in time and space--presents opportunities for doing so. Moreover, the development of existing technologies for educational purposes (not to mention new technologies to appear over forthcoming decades) can readily make the question increasingly obvious. But the opportunities must be seized as quickly as possible, before the system of higher education evolves to a new and perhaps

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[20] e.g., Daniel U. Levine and Robert J. Havighurst (eds.). *Farewell to Schools???* Worthington, Ohio: Charles A. Jones Publishing Co., 1971.

[21] Michael Marien. *Alternative Futures for Learning: An Annotated Bibliography of Trends, Forecasts, and Proposals.* Syracuse: EPRC, May 1971. 223 pp.

less desirable state, as might be the case with The Extended Credit System that is subsequently outlined.

B. Variation in Institutional Structure

The theme of the 28th National Conference on Higher Education, held in Chicago during March 1972 by the American Association for Higher Education, was "The Expanded Campus." Indicative of the support for new ways of awarding credit was the response to a questionnaire by Harold L. Hodgkinson, in which 90% of 1497 respondents (largely administrators) agreed that students should be given academic credit for out-of-class learning experiences.[22] The difficulty is that this could mean many things, but to the respondents it probably meant the awarding of some credit for off-campus learning as part of standard degree requirements.

In this sense, space and time constraints are being loosened on individual campuses, and perhaps a score of non-residential adult degree programs are being sponsored by individual institutions such as Syracuse, Oklahoma, SUNY at Brockport, and Brigham Young. But the most important developments in S/T-P higher learning are taking place beyond individual campuses. These new programs can be loosely grouped by their relationship to existing campuses on a dependent-independent continuum.

Dependent institutions concentrate on inspiring programs, providing credit, or offering courses. The Antioch-based University-Without-Walls is coordinating UWW programs on about 20 campuses scattered throughout the country. The College-Level Examination Program provides examinations in more than 30 subjects, and over 1000 participating institutions award credit for passing these tests.[23]

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[22] Harold L. Hodgkinson, "Key Issues Questionnaire for AAHE Members." 5 pp. Mimeo. Prepared for March 1972 AAHE Annual Meeting.

[23] The CLEP program can also be used by employers, or by individuals who simply wish to find out how well they can do. In the absence of data on utilization for these purposes, it is presumed that the major use of CLEP is for gaining college credit.

Several organizations in the U.S., such as Futures Resources and Development, Inc., are developing course packages that may be used as a cost-saving device on traditional campuses, or by individual students in external degree programs. Students enrolled in the State University of New York's Empire State College may use the resources of the multi-campus SUNY system in varying degrees and the External Degree Planning Consortium in Central New York, sponsored by the Policy Institute of the Syracuse University Research Corporation, draws together resources in a five-county area.

Independent institutions have the greatest potential for profound impact on higher learning. Two publicly-sponsored models are already widely known: the External Degree (to be offered by the University of the State of New York in Fall 1972) and the British Open University, which has stimulated similar proposals in the United States, such as the University of the Commonwealth in Massachusetts that will open in Fall 1972.

England's Open University, beginning operations in January 1971 with an initial enrollment of 25,000 (and planning to enroll 100,000 by 1976), is an entirely new and independent institution, utilizing weekly BBC programs on TV and radio, correspondence packages, and the services of 3000 part-time tutors and counselors at 250 study centers throughout the nation. Although presently limited to students aged 21 and over, the British government is increasingly interested in providing services for the college-age population, in that the cost per student is estimated to be about one-third of conventional campus-based education.

The public programs are both highly visible and subject to instant legitimacy. On the other hand, there are a number of private programs that are not widely known and are having legitimacy-gaining problems which may or may not be warranted. The Commission on Non-Traditional Study warns of "charlatans in our midst [who] are taking advantage of the flexibility of non-traditional education to increase

their 'diploma-mill' types of operation."[24] This may well be true, but the Commission should also be very careful not to discourage small innovative projects that are sincerely trying to create viable alternatives but cannot be seriously evaluated for a number of years.

One such program is Campus-Free College, which has established a continental network of almost 200 Program Advisors, each potentially working intensely with one or more students to create an individualized learning program that may employ any combination of formal or informal learning experiences. About 40 students are presently enrolled, but it is far too soon to know whether the educational outcomes will measure up to hopes. CFC is in many respects a private counterpart to Empire State College (which employs Mentors in a similar tutor/counselor role) and has many elements of the not-for-credit learning consultants advocated by Tough, or the learning webs advocated by Illich and Reimer. Unlike ESC, which charges a standard fee, CFC is attempting a flexible fee-for-service-rendered relationship. CFC intends to offer a legitimate credential, but is also open to possibilities for credit-preference learning.[25]

The future structure of S/T-P institutions (and, consequently, of the whole of higher learning) is quite uncertain at this point. As the Commission on Non-Traditional Study points out, "We find a general lack of communication and a consequent duplication of effort among those individuals, agencies or institutions engaged in or planning for non-traditional education." (*New Dimensions for the Learner*,

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[24] Commission on Non-Traditional Study. *New Dimensions for the Learner: A First Look at the Prospects for Non-Traditional Study*. N.Y.: Commission on Non-Traditional Study (888 Seventh Avenue), Sept. 1971, p.10. There is an even deeper problem here, for there is a long history of applying sanctions against privately offered educational services. The Federal Trade Commission can constrain proprietary schools for false advertising and other forms of fraud, but there is no agency to apply similar sanctions to publicly-supported institutions and accredited private institutions which may be equally mediocre or even fraudulent. Because the public sector is immune to charges of fraud, it gradually absorbs functions that could be performed in the private sector.

[25] As a Trustee and Program Advisor of CFC, I must confess to a possible bias.

p. 11.) At some point, however, various coordination agencies will surely arise for all or most of these programs, such as a S/T-P association (similar to the associations for urban universities, state colleges, Catholic colleges, etc.), a Bureau of Non-Traditional Studies in the U.S. Office of Education, a newsletter, and a clearinghouse for information. All of these developments can--and ought to--take place in the next few years.

Over the next decade, there will be considerable development, consolidation, coordination, and competition. One way to suggest the possibilities is to employ another taxonomy of four models based on examinations, courses, counseling and/or some mixture.

There are two forms of the examination model: one for courses (CLEP) and one for degrees. Both forms appear certain to expand, but each form has options. The College-Level Examination Program can expand its repertoire of subject-matter examinations into narrow sub-disciplinary areas and/or into broad transdisciplinary areas, or, by the sum of its exams or by a new set of exams, it could provide the materials for an External Degree program. External Degree programs will first appear on the state level, but there are already proposals for regional examining universities (*Report on Higher Education*, p.69) and a National Baccalaureate Examination (proposed by Bernhardt Lieberman and Deborah Wycoff of the University of Pittsburgh). With trends toward globalization, there will surely be proposals for an International Baccalaureate to consider. There are obvious benefits in coordination and standardization, and such a development is consonent with trends toward nationalization and globalization in many realms of human activity. At the same time, there are dangers in standardized requirements, especially if they are inflexible or inappropriate.

Similar to examinations, the provision of instruction can occur on state, regional, national, or international levels. Indeed, England's Open University is attempting to market its course materials abroad, and the Open University of North America, a small planning group in Washington, D.C. is exploring possibilities for using OU materials in the United States. National pride might encourage

competition (similar to competing in the air travel market) as well as limit the acceptance of many programs. Adding to the cacophony of nationally-sponsored programs, there will surely be several transnational groups offering a global curriculum in the service of cosmic humanism and a planetary society. Again, there will be benefits in standardization and coordination, as well as a need for encouraging diversity and choice. The nature of instructional materials and of the systems that utilize them will be highly influenced by developments in technology--to be subsequently discussed.

The counseling model, exemplified by Empire State College, the University-Without-Walls, and Campus-Free College, can be tied to a state university system, a single campus or consortium of institutions, or, as with CFC, it may be completely independent of existing institutions. Credit-preference learning could be promoted by these programs, but could also be promoted by separate networks of counselors or advisors. Again, one can expect competing models of advisors located in learning centers (as planned by Empire State College), in small decentralized offices (similar to the point-of-provision for legal and medical services), or in their homes--where one can be closest to residents in the community and their learning needs.

C. The Impact of Developing Technologies

The S/T-P institutions described above are just beginning to function and their potential cannot be fully appreciated unless the development of new communications technologies for educational purposes is considered. Within a decade, some families may have a "multi-screen home information center." Not only will there be a television screen with an expanded variety of source options (cable, video-cassette, satellite), but also a picturephone, computer terminal, ultramicrofiche reader, and/or some multi-purpose screen. The possible combinations are equal in their diversity to the possible program combinations discussed above--and equally unpredictable other than in a rough aggregate sense as attempted here.

Instant access to the world's information could be possible. Video storage and playback devices could enable the individual's

control of time, and increasing miniaturization could enhance media portability and the control of space. The development of computer display capabilities could provide powerful methods for enabling the individual to manipulate information. But the problem would still remain as to whether individuals are willing and capable of utilizing these many options. And the problems of the structure and quality of knowledge made available will continue to supercede the often over-rated technical ability for transmission. To cope with the paradox of concurrent information overload and underload, the need for learning counselors or information brokers should become increasingly apparent.

There is also a need for studying technologies--both individually and in combinations--for their possible uses in S/T-P programs and to begin planning for intelligent utilization before some options are foreclosed.

Cable television, for example, is approaching a take-off point of dramatic development several years hence. The Sloan Commission on Cable Communications reports that cable has been growing at an annual rate of 22%, and at some point in this decade "it will possess the economic base that will enable it to provide for the system, particularly if interconnected, totally new programs and totally new services."[26] It is cautiously predicted that by 1980, most cable franchises will have a capacity of 20-40 channels (and perhaps 80 or more by pairing cables), market penetration will be between 40% and 60%, low cost interconnection by satellite will be available (thus enabling a national network), and digital return signals (the capacity to answer "yes" or "no" to any question posed by the head-end) will be a conventional component in most or all installations. The Commission noted that the "full impact on the educational system might be enormous," but that a major study of this impact "must be undertaken as part of the study of the educational process as a whole" (*On the Cable*, pp. 108-109). Cable

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[26] Sloan Commission on Cable Communications. *On the Cable: The Television of Abundance*. Report of the Commission. N.Y.: McGraw-Hill, 1971, p.38.

can be used as a public utility for ad hoc conferences, and it is quite possible to envision five or even ten channels devoted full-time to a Cable University--quite a far cry from the daily hour that the Open University now commands on BBC-2. Similar to the OU's student-less campus at Bletchley, such a development would necessitate a community of scholars devoting their full-time efforts to preparing and revising programs.

Even more important, for educational purposes, will be the development of videocassettes. A "Cassette University" could offer thousands of courses and mini-courses for individual use at any time or any place. An individual would have a far greater choice of content than he would have at the largest of multiversities, and he could potentially choose between a number of outstanding instructors teaching the same topic via different approaches. In that this cassette instruction would be publicly available, one could well imagine a variety of rating systems such as reviews in newspapers and magazines, *Consumer Reports*-type catalogs, and selections of acceptable courses by individual universities and S/T-P programs. Multiple sources of direct criticism would stand in marked contrast to the indirect rating through superficial accreditation procedures that marks the evaluation of present programs of instruction in higher education.

Finally, one must consider the computer, for, with a doubling of computer power and a halving of computer costs every three years, mass information utilities will soon be available. Harold Sackman warns, however, that computers are not being developed for optimizing education. For every well-intentioned individual who can devote a fraction of his time to work towards social excellence in information utilities, "there are at least one hundred or perhaps one thousand full-time employees" in corporations who are planning for a quick killing. Sackman warns that without enlightened social planning, the computer-serviced society would follow the precedent of broadcast television: commercialization and banalization.[27]

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[27] Harold Sackman. *Mass Information Utilities and Social Excellence*. Princeton, N.J.: Auerbach Publishers, 1971.

On the other hand, there are many startling predictions, such as that made by Theodor Nelson:

> Within the coming decade we will see the explosive growth of computer display, an expansion that will rival or surpass that of television, and compare in ubiquity to the very telephone. We are going to have an entire cultural revolution based on computer display.[28]

And a recent Delphi survey conducted by Bell Telephone of Canada optimistically concludes that:

> By 1983 a significant number of homes will be equipped with home terminals capable of utilizing IRTV, CAI and computerized library systems. By 1988 more than half of all households will employ these services. As a result significant numbers of post-secondary students will spend more time working alone or in small groups by 1980. Secondary students will follow by 1983 and primary students by 2000.[29]

Could this condition really occur in the 1980's, or are these assessments by educational technologists simply more of the naive and wild claims that have been made by educators and technocrats in the past? If this condition does occur, would it be a humane and efficient improvement on present arrangements for higher learning, or does it carry undesirable consequences--a matter the panelists did not concern themselves with?

D. Variation in Modes of Learning and Organizing Frameworks

Space/Time-Preference higher learning can potentially be quite variegated as to the style or mode of learning activity and the conceptual or organizing framework around which one can integrate his learning. However, it must be strongly emphasized that flexibility

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[28] Theodor H. Nelson, "Computopia and Cybercrud," in House Committee on Education and Labor, *Alternative Futures in American Education*. Appendix 3 to Hearings on H.R. 3606, Jan. 1972, p.179.

[29] Frank J. Doyle and Daniel Z. Goodwill. *An Exploration of the Future in Educational Technology*. Montreal: Bell Canada, January 1971, p.65.

in space and time does not necessarily create any change in the how and what of learning. And, if the developers of S/T-P higher learning see it merely as a duplication of the traditional methods and courses that presently pervade higher education, then this in fact is the way it will be developed, at the possible cost of foreclosing significant opportunities for innovation.

To illustrate the potential variegation, one need only look at New York's Empire State College (opened in Fall 1971), where the learner is encouraged to choose from what appears to be a full spectrum of possibilities.

For learning modes, one may employ any mix of the following:[30]

--Formal courses offered by colleges, industries, unions, and community agencies.

--Cooperative studies which arise when students share a similar interest and want to create a group to coordinate activities, share resources and experiences, or create a common outcome.

--Tutorials.

--Organized programs of more or less self-contained resources such as correspondence courses, programmed learning materials and televised instruction.

--Direct experiences such as travel, observations, field work, paid employment, and volunteer activities, which may be supervised or unsupervised, and which become the object of examination and reflection by the student.

--Independent studies, which usually call for a series of readings and writings, and which may also include direct experiences as described above.

And for organizing frameworks, four major clusters are identified:

--Vocational/Professional: expectations or requirements associated with various vocations, professions, certifying agencies and graduate schools.

--Disciplinary/Interdisciplinary: units and sequences associated with various traditional and emergent concepts of the disciplines.

--Problem Oriented: knowledge and competence pertinent to various social problems and human concerns such as population,

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[30] "Learning and Degrees at Empire State College," c. Dec. 1972, 6 pp. Mimeo. According to the Director, James Hall, this more sophisticated formulation will replace that which appears on pp.38-39 in the 1971-72 ECS *Bulletin* (Saratoga Springs, N.Y., 1971, 52 pp.).

environment, race, civil liberties, transportation, and world peace.

--Holistic/Thematic: knowledge or competence pertinent to various thematic interests or holistic studies such as the culture of cities, the fine arts and society, the phenomenon of man, studies in Britain, the culture of work, and the demand of mankind.

To think of S/T-P higher learning only as external degrees and open universities, as many now do, allows one to overlook the substantial innovations that could take place.[31] There is a growing need for individuals with a problem-oriented or holistic-thematic overview and for individuals who can integrate knowledge of any kind. Yet these skills are difficult to develop because of the departmental hegemony on most campuses, the paucity of capable generalists, and the fragmentation of learning into credit hours that do not necessarily add up to the slightest approximation of a coherent whole. It is also increasingly necessary, in an era of lifelong learning, for individuals to be able to formulate their own learning needs and goals. But these desirable learner processes and outcomes can be lost (for individuals and society) if they are not consciously identified and promoted.

External degrees and open universities could prove to be valuable, but the independent learning that they award should not necessarily be equated with self-determined learning. External degrees could be highly flexible, and awarded to the learner on the basis of multiple criteria of evaluation. But they could readily become standardized and reduced to a single "objective" criterion of paper and pencil testing. Both external degrees and credit by examination are subject to the generally neglected problems that are currently associated with college board exams: teaching and learning for the test and development of various test-related services such as manuals and proprietary

[31] For example, in *The Fourth Revolution* the Carnegie Commission states that "the new Empire State College is regarded as an 'open' alternative to traditional higher education and, like Great Britain's Open University, relies heavily upon materials especially designed by a development faculty." (p.27) This is simply not true; ESC is considerably different from OU, especially because there is still no intention (as of July 1972) to develop a heavy reliance on specially developed learning materials.

schools that prepare students to take exams (therefore placing the student who does not have access to these services at a disadvantage). Although the external degree and credit-by-examination have been developed to bring greater justice to the crediting process, these new instruments could result in new forms of injustice.

Britain's Open University offers an excellent general education, whereby the student obtains a bachelor's degree by taking only six year-long courses. (A Bachelor's degree with honors is awarded for eight of these courses, seemingly a curious triumph of quantity of learning over quality of learning!) But despite this reformed curriculum, the OU program is nevertheless a predetermined package and does not allow the student preference to pursue his interests and needs and to participate in the shaping of his learning experience. There is a severe danger that, in the American rush to emulate the British example, the courses offered will not come even close to approximating the quality of the British package, and may simply reflect the traditional compartmentalized curriculum.

At the other extreme of the learner determination continuum, in contrast to determination of content by professional educators, is the condition where the learner has considerable--but not total--choice in determining what is learned. This condition is suggested by Empire State College, the University-Without-Walls, and Campus-Free College--and, of course, is the condition under which credit-preference learning could be encouraged. The conscious promotion of credit-preference learning by public authorities could serve as an important balance to the extension of opportunities for obtaining credit.

E. Legitimacy

The advent of S/T-P higher learning will inevitably lead to charges that "standards are being lowered." This could indeed happen, but the longer-term impact may well prove to be a questioning of standards for existing institutions. The standards at present are expressed as accredited or non-accredited institutions and programs. But in a thorough study of the 6 regional and 31 specialized accrediting agencies, Charles F. Ward found inappropriate administrative structures, inadequate

and irrelevant standards and evaluative criteria, and a lack of scientific foundation in the accrediting process.[32]

> Persons without a vested interest or representatives of the public interest were not found in the power structure of any of the regional associations. (p.196)
>
> From all the materials analyzed and from the literature reviewed, no evidence was found to suggest that the regional associations have engaged in scientific studies to ascertain the reliability with which standards or evaluative criteria can be applied or to determine the validity of such standards or evaluative criteria in predicting the output of a quality product. (p.198)
>
> Unless both the regional and specialized accrediting associations make needed changes in administrative structure, broaden representation, and undertake a scientific investigation of their standards and evaluative criteria, a consideration of alternatives should not be ruled out. (p.108)

Desired alternatives are not discussed, but it is suggested that state agencies are not the answer:

> When various factors are considered, it appears that evaluation as practiced by many states is comparable to that practiced by the specialized accrediting agencies and the regional associations. (p.108)

These findings, and other complaints about existing accreditation practices, will surely be raised in the future. There may very well prove to be a need for new structures and, as suggested earlier, publicly visible instruction, such as that offered by an open university, may come to be evaluated by several sources. The advent of highly individualized programs, such as the variety of options offered by Empire State College, may ultimately force evaluation by learning outcomes, rather than evaluation by various input criteria ("quality" of faculty, volumes in library) as at present. But even if learning outcomes are to become the significant criterion for legitimacy, it must be remembered that "good" institutions start with "good" students;

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[32] Charles F. Ward. *The State of Accreditation and Evaluation of Post-secondary Occupational Education in the United States.* Raleigh: North Carolina State University, Center for Occupational Education, Report No. 12, 1970. Although the report is concerned with accrediting occupational education, the authoritative review of all accrediting activity serves as a necessary background.

thus, to be meaningful, institutions and programs would have to be evaluated by some measure of learning added. A further modification that may increasingly be justified by the learning society of the future would be an assessment of institutions and programs by their contribution to an individual's capacity to learn--an outcome that may be valued even more than contributions to an individual's knowledge and skills.

F. Equity

One of the major motivations for initiating new learning opportunities is to enhance equality of access to higher learning and to the credentials that increasingly serve as passports to job opportunities. There can be little doubt that S/T-P programs--particularly the College-Level Examination Program--will result in greater justice in determining who knows what.

But there is considerable doubt that S/T-P programs will promote greater equality of condition and a lessening of social stratification. For example, proponents of the Open University, first proposed in a campaign speech by Harold Wilson in 1963 and subsequently supported by the Labour Party, were dismayed to find less than 10% of the initial applications coming from the intended working class clientele.[33] Liberal optimism is still maintained and better publicity could raise the working class participation rate, but it is still problematic as to whether participation and program completion would be proportionate to that of the middle and upper middle classes, both in Britain and in S/T-P programs to be developed in the United States.

The middle and upper classes are simply better equipped for successful learning, both in and out of school. They are healthier than the poor, they have educated family members who can serve as informal tutors, they have better housing where they can study, they have more learning-supportive community milieus, they have a wider choice of learning opportunities, and they have greater purchasing power for

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[33] Stuart Maclure, "England's Open University: Revolution at Milton Keynes," *Change: The Magazine of Higher Education*, 3:2, March/April 1971, p.68.

acquiring the tools of learning such as books, tutors, and the various electronic conveniences that will enhance learning in forthcoming decades. At best, by providing choices for everyone and financial support for the disadvantaged, inequity can be reduced. But inequities will still exist, and it is a disservice to the public to imply that the goal of equal opportunity is attainable.

It may well be that the only way S/T-P opportunities will contribute to the reduction of social barriers is by creating significant economies in higher learning so that the funds saved can be more directly redistributed to the poor. There is no assurance that such a dividend, if forthcoming, would be redirected into other programs. But continuing to assert that higher education can solve problems of equal opportunity serves to detract attention away from the fundamental issue of the distribution of income and assets.

G. Personnel

In anticipating the advent of new electronic technologies, the Carnegie Commission has made the following recommendation:

> Colleges and universities that are responsible for the training of prospective university, college, and high school teachers should begin now to incorporate in their curricula instruction on the development of teaching-learning segments that appropriately utilize the expanding technologies of instruction (*The Fourth Revolution*, p.68).

However, the Commission goes on to note that "We see no reason to alter the subject matter orientation of a faculty member's preparation." (p.71)

The estimates of the quantity and quality of personnel required in the future depend, of course, on the nature of the system that is envisioned in the future. If it is assumed that the new S/T-P institutions will not significantly increase the participants in higher education, and that the new style and content of higher education will substantially duplicate existing style and content, then questions of personnel become a minor concern.

But if the new programs attract new clientele (beyond the number

attracted away from existing programs, if any), then there will be new personnel needs. One can surely expect a greater proportion of the college-age group to participate in higher education as a result of the flexibility afforded by S/T-P programs. The demand for full-time or part-time learning in degree-credit programs among the 120 million post-college age adults is hard to judge, in the absence of any serious attempt to gauge the market, but the estimate by the Carnegie Commission of 80,000-130,000 full-time equivalent extra adults by 1980 could prove to be far from "reasonable." The number of FTE extra adults could very well be 2 million, or even 5 million. The wide-spread provision of not-for-credit educational services could add several million more FTE learners, in addition to the millions that are presently learning in formally organized but non-credited programs sponsored by corporations, proprietary schools, government agencies and voluntary associations.[34]

The characteristics of the new educating personnel that could be needed might be substantially different from those of personnel in present institutions. Even now, college teachers are not well-prepared by their research-oriented training, although the new Doctor of Arts programs may make some slight difference. But S/T-P programs, to the degree that they encourage learner participation, require personnel who are skilled at tutoring and counseling, who have a wide grasp of knowledge and information sources, who can interact with learners in a productive dialogue, who help to identify and satisfy the learning needs of others. Perhaps such people will be found in adequate numbers despite the orientation of existing institutions. But it is certainly the case that there is no attempt at systemic planning for future educating personnel.

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[34] Stanley Moses. *The Learning Force: A More Comprehensive Framework for Educational Policy*. Syracuse: Syracuse University Publications in Continuing Education, Occasional Papers No. 25, Oct. 1971 (available from EPRC). Moses estimates 60 million learners in the "educational periphery," but if reduced to full-time equivalents, there could hardly be more than several million FTE's. The "Learning Force" concept is valuable for drawing attention to the vast number of learners in organized but non-credited programs. But the value is offset by drawing attention away from self-directed learning, which may be more important both in quantity of effort and in quality of learning outcomes.

H. The Higher System and the Lower System

Although "The American Educational System" is often referred to as a single entity, it is better understood as two systems: the higher system of junior colleges, four-year colleges, and graduate schools, and the lower system of elementary and secondary education. The systems are still quite separate from each other in state and national planning and especially in the literature. One set of experts and journals is devoted to the higher system, while an almost exclusive set of experts and journals is devoted to the lower system. The number of books and articles that consider education in its entirety is miniscule.

Yet, over the past few decades, the interpenetration of the two systems has increased. Academics in the upper system are paying attention to curriculum redesign for the lower system, while the lower system has assumed a role of preparing students for the upper system, at the expense of vocational studies. Planning is still a segregated activity, yet even here there are intimations of a trend toward comprehensive state planning.[35]

Social systems throughout society are increasingly interconnected, and any systemic analysis should obviously take this into consideration. In examining the future of S/T-P higher learning, then, it is important to consider the impacts of S/T-P higher learning on the lower system, as well as developments in the lower system that might facilitate or inhibit the development of the S/T-P sector of the higher system.

By breaking assumptions of space and time at the higher level, the new educational thinking will impact on the lower system to some degree. As a result of establishing the Open University there has already been a brief proposal for establishing an Open School that would utilize a new television channel, TV4.[36] And, in America, as

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[35] Bernarr Furse and Lyle O. Wright (eds.). *Comprehensive Planning in State Education Agencies: A 7-State Project*. Salt Lake City: Utah State Board of Education, 1969.

[36] Brian Jackson, "TV4 Takeover," *The Times Educational Supplement*, December 11, 1971.

a result of planning for the New York State External Degree Program, a parallel proposal has been made for exploring the possibilities of a High School External Diploma: "a system of generating and measuring student competence which is derived either in whole or in part from work undertaken through independent and flexible study."[37]

A still greater impact on the lower system could occur by the attainment of widespread continuing learning or recurrent education, which would affect many teachers, as well as parents. Indeed, this indirect approach through post-secondary education could prove to be the most effective way to bring change to schools, as well as the informal education of children through their parents.

On the other hand, several developments in the lower system are noteworthy, in that they could stimulate demand for the S/T-P options in the higher system. The "School-Without-Walls" in Philadelphia has already received considerable attention, and similar programs are being started in Chicago, Toronto, Kansas City, Washington, D.C., Rochester, and other places.[38] The success of "Sesame Street" and "The Electric Company" is drawing attention to the fact that significant learning can take place outside of established institutions. Free schools and open schools, although space-bound, are acclimating students to more flexible and independent patterns of learning. The voucher plan to facilitate choice will undergo its first pilot test in the Alum Rock district of San Jose, California in Fall 1972. Work-study programs are increasingly favored, not only for accommodating potential school dropouts, but for providing a taste of "real life." Together, these developments may only signify minor trends or even passing fads--or they may be early indicators of significant

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[37] Policy Institute of the Syracuse University Research Corporation. "High School External Diploma." Syracuse, N.Y.: The Policy Institute (723 University Ave.), Oct. 13, 1971. 16 pp. Mimeo.

[38] John Bremer and Michael von Moschzisker. *The School Without Walls: Philadelphia's Parkway Program.* N.Y.: Holt, Rinehart & Winston, 1972. Also see Henry Resnik, "Parkway: The School Without Walls," in Ronald Gross and Paul Osterman, *High School.* N.Y.: Simon and Schuster, 1971.

change in the lower system that would develop a clientele that is already prepared to benefit from S/T-P programs offered by the higher system.

The trend of reform for both the higher and lower systems is to offer genuine choice to students as to the where, how, and when of learning--not simply to offer greater opportunity to attend a single institution. Developments in the higher system will influence the lower system and vice versa. Monitoring these mutual impacts could be of considerable aid to educational planners.

III.

SIX ALTERNATIVE FUTURES FOR HIGHER EDUCATION

Six basic futures for higher education in the 1980's can now be suggested.

1. The Extended Campus System: closest to the future assumed by the Carnegie Commission's estimates of new students and recommendations for new places; essentially, an extrapolation of the existing system, requiring the non-fulfillment of many promising technologies and reforms.

2. The Extended Credit System: suggested by a different reading of the Carnegie Commission recommendations; electronically-based extramural programs as a significant portion of the higher learning enterprise.

3. The Variegated Extended Credit System: similar to No. 2, but promoting the full range of learning modes and organizing frameworks, with particular emphasis on encouraging independent learning.

4. The Learner-Centered System: includes No. 3, but promotes non-credit learning to the extent that it helps the interests of the learner.

5. The Diminished Campus: No. 2, or No. 3, or No. 4, but with a decrease of more than 20% in the utilization of presently-existing campus facilities.

6. The Empty Campus: complete replacement with a more desirable system or inadvertent destruction of all human systems.

Each of these future conditions is roughly sketched in the scenarios that follow. These scenarios can be seen as goals to work toward or as dystopias to avoid--or as initial sets of questions, e.g.: Will there be a Global Electronic University? What proportion of FTE student hours will be engaged in the S/T-P sector by 1980? By 1990? The scenarios will necessarily change as new data is made available on the changing "market" for learning and on who best learns what, when, where, and at what cost.

The most probable outcome depends on the choices of many students, teachers, researchers, planners, and politicians. If alternatives are not seriously considered and the Carnegie Commission proposals are accepted, the first or second scenario--or some condition midway between them--would be the most probable outcome. Such an extension of the existing campus-based system or of the course and credit system may be most desirable for those who are employed by the present system. But is this outcome the most desirable one for the public interest and for the interests of individual learners of all ages? Whose interests should higher education serve? Whose interests are primarily served by the Carnegie Commission?

The second variation of "The Empty Campus" scenario--inadvertent termination of higher education due to eco-catastrophe or nuclear holocaust--is highly undesirable to everyone. Yet, our present system of knowledge production and distribution, based on the receding industrial era, has contributed to the possibilities of global destruction as well as global salvation. Would an alternative system, promoting more societally necessitated learning at lower costs, substantially lessen these possibilities? No supportable claim can yet be made that promoting space/time/credit-preference and credit-free learning will significantly enhance the possibilities for human survival. But no claim can be made to the contrary, either. The possible benefits from seriously exploring major alternatives and their consequences would surely outweigh the costs by a momentous margin. Such an investment has yet to be made, despite millions of dollars devoted to educational research concerned with considerably lesser matters.

A. <u>The Extended Campus System</u>

The rush to embrace S/T-P programs in the early 1970's proves to be another unfilled promise of technologists and reformers. A deliberate cautiousness pervades the nation and there is little student demand for programs that do not lead to acceptable diplomas. In order to make external degrees legitimate, the standards were

set so high that relatively few persons dared to take the examinations, and those that did and passed them found that their diplomas were not acceptable to some employers. Open universities were tried in several states, but the quality of the programs was so inferior that they were immediately labeled as third-rate by critical observers, and attacked by minority groups as "education on the cheap." New technologies did not develop at the anticipated rate. Cable was slow in being instituted, and only one channel at most was devoted to Open Universities. The videocassette market continued to suffer from an overabundance of incompatible playing devices and educational uses remained largely confined to corporate training programs. Computers were developed solely for commercial and research purposes, and information utilities were developed only to serve various professions. Proposals for national universities, national examinations, and national information utilities were left on the drawing boards, for fear that the federal government would take over education. Flexible programs to promote learner self-determination were abandoned as a result of high costs, high dropouts, and difficulty in proving their legitimacy. The practice of awarding credit-by-examination was curtailed in the late 1970's when it was discovered that many students were employing cram manuals. The new sensibility argued that, at least by the physical presence of the student in the classroom, there was higher probability that something was being learned.

As recommended by the Carnegie Commission, 83 state universities and 215 community colleges were established during the 1970's. Virtually every American is now within commuting distance of some college campus.

B. The Extended Credit System

About 40% of all FTE student hours are engaged in the S/T-P sector of higher education, and, as a result of new opportunities for obtaining credit and credentials, participation in higher education exceeds the expectations of the early 1970's by more than 50%. The College-Level Examination Program now offers its services in

more than 800 specialized subject areas, and several knowledge conglomerates offer course packages that include cassette lectures and textbooks. As recommended by the Carnegie Commission, six regional cooperative learning-technology centers have been established. The five regional cable universities, each commanding 10-15 channels, offer live instruction from 6 A.M. to midnight. Affluent students of all ages can dial resource centers for supplementary materials to be printed out on the computer terminal in their home learning center. The National University offers diplomas-by-examination for those who do not wish to prepare for the external degree examinations offered by 17 states and the New England University. A variety of learning centers tied to a variety of institutions are located in virtually every community with more than 5000 population, in some cases combined with local high schools. No new campuses have been constructed since 1975, and several dozen former liberal arts colleges have been converted to seminar facilities and learning centers. Despite the growth of electronically-aided learning, populations on college and university campuses have remained about the same as during the 1970's, the only difference being the growing proportion of students enrolled in programs that are not sponsored by the campuses where they are taking courses. Because students have a wider choice of instructional resources, poorly designed and poorly taught courses can be avoided, and tenure regulations have been abolished. Large lecture courses have been abandoned, and classroom activity is now devoted almost entirely to seminars.

In the late 1970's considerable attention was paid to the obsolescence of skills in the labor force, as concerns both blue collar and white collar workers. The availability of opportunities for continuing education encouraged educators and employers to discover learning needs. A new respect for diplomas now pervades the nation, for if anyone claims any skill or knowledge, he can now obtain examination from any of several sources to prove it.

Many educators are proud of the learning opportunities that are now available to anyone. But complaints are still voiced, for the traditional organization of knowledge in the various academic disciplines and professions has been reinforced by the extended credit

system. In order to gain legitimacy, the CLEP examinations adhered to the conventional courses of established scholarly groups. The content of these examinations was felt to be sufficiently interdisciplinary, so that transdisciplinary and holistic problem-oriented studies could not emerge. Now that CLEP examinations serve as a national standard, it is difficult to introduce any transdisciplinary problem-oriented tests. Similarly, the external degree programs made a considerable effort to insure that their diploma holders could be equated with the departmental majors on traditional campuses. Due to the pressures to establish programs quickly, in addition to those of gaining acceptance, the cable universities replicated the courses on traditional campuses, rather than engaging in the considerable time and expense necessary to develop transdisciplinary courses similar to those of the Open University.

But the greatest source of despair for would-be reformers was the failure to tip the balance of power in program determination to the learner. The University-Without-Walls, Empire State College, Campus-Free College, and other experimental institutions developed in the early 1970's still exist, but difficulties in legitimating the less conventional programs, in addition to high dropout rates, have kept the total number of graduates from these counselor-based institutions at well under 1% of all baccalaureates awarded.

C. The Variegated Extended Credit System

(This system is similar to the Extended Credit System with exceptions as follows)

A full spectrum of programs, courses, and credit options is now available to all Americans. In addition to examinations in conventional subjects, the College-Level Examination Program has pioneered in the development of a number of interdisciplinary examinations, reinforced by external degree programs that willingly give credit for them. The curricular reform of most cable universities has stimulated the rethinking of many traditional campus-bound programs. Individualized programs that are largely (but never entirely) determined by students, as exemplified by Empire State College, now represent more

than 20% of the baccalaureates that are granted annually. Credit given by the several international universities, most notably the Global Electronic University, is now accepted by virtually all American institutions, both traditional and space/time-preference.

D. The Learner-Centered System

(This system is similar to the Variegated Extended Credit System with exceptions as follows)

Early in the 1970's, it was recognized by a number of educational planners that the learning needs of the nation could not be accommodated by existing institutions, and that an extended credit system--even broadly defined--could result in a "credit-crazy society," as several critics feared. It was decided that, rather than suppress rapidly developing S/T-P institutions, every possible effort would be made to encourage not-for-credit learning. In an unprecedented act of social experimentation, 80 pilot projects were established simultaneously throughout the nation, employing learning facilitators in various spatial and skill configurations. There was considerable difficulty at first in convincing adults that they could learn outside of schools and that they had indeed been doing so under some other rubric. After overcoming this initial resistance, the local learning facilitators (or counselors, or teachers-at-large) collected valuable data on needed learning materials, courses, and services that could help their clients, and the data was passed on to planners at schools of education, publishing houses, and course designers at the cable universities. From the beginning, the policy was that learners were encouraged to seek credit if needed--but only if it was needed. Open universities and counselor-based colleges cooperated by offering not-for-credit services and encouraging not-for-credit learning.

Initial response to credit-free educational services was greatest among upper-middle class adults who already had adequate credentials and were simply interested in finding out more about themselves and their increasingly complex and disturbing world. Other adults, engaged in credited learning for purposes of occupational upgrading, were encouraged in non-credited learning as a supplement to their jobs

and to satisfy personal needs. College-age students increasingly eschewed credit, fired by egalitarian values, the models of free universities established in the late 1960's, and the experience of some in free schools at an earlier age. Other students, raised on Sesame Street, The Electric Company, and successor programs, had already found that their most valuable learning experiences were out-of-school. Among those who required credentials for access to certain jobs, the demand was raised for alternative methods of selection based on performance, and several major employers now use multiple standards. Students who opted for credit-free learning were increasingly encouraged to do so because mechanisms were always available to evaluate skills and knowledge if necessary.

One of the most important influences on credit-free learning was the New Century Council, established by the President in early 1974. Tied in to the Bi-Centennial in 1976, the Council collected and distributed learning materials that would enable citizens of all ages to comprehend the full spectrum of views on American history, social trends and problems, and alternative futures. As a corrective measure to mass irrationality or the possible advent of a neo-fascist state, this extensive citizen education project encouraged widespread participation in understanding problems and formulating visions of desired futures for America, and 500 New Century Citations were awarded to the most noteworthy contributions. The New Century Council greatly stimulated enrollment in the degree-credit public policy programs of the various Open Universities, and in the credit-free seminars on many local campuses which addressed major problem areas and were open to the public.

E. The Diminished Campus

Although the first four alternatives necessitate no decrease in the utilization of presently-existing campus facilities, "The Diminished Campus" offers a mildly plausible condition where utilization under any mix of programs actually declines by, say, more than 20%. Such a condition could occur with an Extended Credit System, a Variegated Extended Credit System, or a Learner-Oriented System, as a result

of outstanding success in either efficiency and/or quality:

Variation 1: Low Cost of S/T-P Programs, Regardless of Quality. As S/T-P programs developed during the 1970's and performance data began to be assembled, legislators discovered that operating costs ranged from one-third to one-half of those required for students in conventional campus-based programs. Established campuses were asked to justify their expenditures on a cost-benefit basis, and, unable to do so, many were closed down and converted to low income housing and recreational facilities.

Variation 2: High Quality of S/T-P Programs, Regardless of Cost. As S/T-P programs developed during the 1970's and performance data began to be assembled, students discovered that learning opportunities were far superior to those of conventional campuses, while educators found that learning outcomes were vastly superior under the new programs. Both students and teachers opted for the personalized counselor-centered modes of learning, supplemented by the wide availability of outstanding instructional materials. Many established campuses were converted to research corporations and public seminar facilities.

F. The Empty Campus

The two Variations suggested below represent hopes and fears that will continue to be expressed throughout this decade. Although each has little plausibility, they should nevertheless not be ignored:

Variation 1: The Deschooled Society. A social revolution takes place, with the educational component inspired by Ivan Illich and Everett Reimer. Schools, tests, and degrees are all abandoned for a credit-free and fully egalitarian society where learning is facilitated by lifetime educational accounts (assuring equality of resources), reference services to educational objects, skill exchanges, peer matching, and reference services to educators at large.

Variation 2: Nuclear Holocaust or Eco-Catastrophe. The campuses are devoid of human life, due to the failure of men and nations to learn how to live in harmony with one another and with the natural environment.

IV.

RECOMMENDATIONS FOR FURTHER INQUIRY

Clark Kerr has recently asserted that "The better system of higher education we have, the better society we have in the long run."[39] This would seem to be a truism, as is the well-known assertion by H. G. Wells, made earlier in this century, that "Human history becomes more and more a race between education and catastrophe." The Carnegie Commission should take both statements seriously.

The brief sketches of six alternative systems presented here are quite fragmentary. But a number of questions are raised, suggesting that the future may be different and perhaps should be different from either the Extended Campus System or the Extended Credit System that are both suggested by the work of the Commission to date.

As a guide to further inquiry for the Carnegie Commission, various state bodies, and independent investigators, the following recommendations are therefore made:

1. The "market" for adult learning should be investigated.

   Such an investigation should not only consider present demand for existing and potential educational services, but should consider ways in which this demand could be significantly enhanced by increased leisure time, and by changes in the tax structure, by sabbatical leave from employment, by retirement regulations, and by changes in educational programs themselves, both on a credit and non-credit basis. Recognizing that demand can also be created to some degree, an investigation of adult learning needs in forthcoming decades, according to various definitions, could prove fruitful for planning.

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[39] Quoted from discussion at AAHE convention, March 8, 1972.

2. The variation in extramural programs should be acknowledged and seriously dealt with.

   As discussed in this paper, the world of extramural programs is not simply Open Universities and external degree programs, as stated by the Carnegie Commission. It appears that present planning activity on the statewide level has followed in this mold and has not considered the full spectrum of alternatives and the serious issues involved. An example of preliminary taxonomic study is provided by David E. Mathieson in Appendix I. The work of John R. Valley for the Commission on Non-Traditional Study is also important in this respect, although lacking any recognition of the critical learner control variable.

3. The desirability and feasibility of promoting informal or credit-free learning should be studied.

   In the Foreword to *The Fourth Revolution*, the Carnegie Commission states that "we are only incidentally concerned with the informal educational potentials of television, while we are very much concerned with the uses of television for instruction." One presumes that "instruction" is construed in the broad sense of educational services resulting in credit, in contrast to the narrow sense of didactic one-way teaching. Even if this is so, a knowledge-based society with a multitude of informational services available to homes and offices cannot ignore the informally acquired learning that is equivalent to that which is valued by society and therefore credited. If lifelong learning is increasingly necessary, the role of informal learning in relation to the "formal" learning resulting from higher education must be seriously considered. If it is necessary for the Carnegie Commission to delimit its inquiry, the reasons for doing so should be stated.

4. Transnational educating structures should be considered.

   "The Fourth Revolution" according to Eric Ashby, a member of the Carnegie Commission, concerns the advent of electronic technology. According to Issac Asimov, who employes the same metaphor, the fourth revolution of electronic communication also involves global communications and ultimately a global village.

   There are unmistakable trends toward a global society,[40] and many others are urging further organization toward a planetary society and world order as a necessary solution to mankind's problems. There have been many proposals for a world university in the past, but new technology in the context of trends toward globalization will surely lead to transnational educating structures of some sort by the year

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[40] Peter F. Drucker. *The Age of Discontinuity: Guidelines to Our Changing Society*. N.Y.: Harper and Row, 1969.

2000. Similar to the neglect of informal learning, transnational institutions are easily overlooked; but, at present rates of globalization, it is not implausible to imagine ten percent of American students enrolled in transnational institutions by the year 2000, or twenty percent of enrollments in American-based institutions composed of foreigners--and these guesstimates may be very conservative.

It is difficult to maintain neutrality in this matter. To contemplate this possibility is to hasten it; neglecting this possibility retards its development and perpetuates the nation-state. It is desirable, again, for the Carnegie Commission to state its reasons for a delimited inquiry.

5. Alternative definitions of a "Learning Society" should be seriously considered.

In *The Fourth Revolution*, the Carnegie Commission exuberantly suggests that the United States "may be able to develop programs and techniques which can extend the advantages of greater learning to less wealthy nations . . . The whole world can be assisted to move faster into becoming a 'Learning Society'." (p.7) But, whether in reference to the United States or the global society, there are at least two ways to define a "learning society": 1) a condition where a great portion of the population takes advantage of available programs, 2) a condition where a great portion of the population is continuously learning by any means. Similarly, alternative systems of education (including subsystems of higher learning) and their interrelationship with alternative societal forms should be considered. As Harman notes, our society is at a crucial point in history when we can choose between, essentially, a second-phase industrial society and a person-centered society.[41] Both societies could be justified as "learning societies."

* * *

In an era demanding a serious rethinking of all of our problems, we cannot afford the luxury of avoiding these most difficult questions. It is not merely a matter of a better society in the long run, but quite possibly a question of human survival.

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[41] Willis W. Harman, "The Nature of Our Changing Society: Implications for Schools," in House Committee on Education and Labor, *Alternative Futures in American Education*. Appendix 3 to Hearings on H.R. 3606, Jan. 1972, pp. 6-53.

APPENDIX I

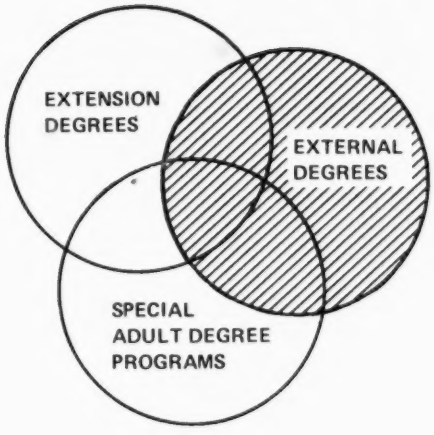
AN UNEASY EXPLORATION INTO EXTERNAL DEGREE PROGRAMS

by

David E. Mathieson

A conceptual distinction has to be drawn between "extension degrees," "Special Adult Degree Programs" and true "External Degrees" whatever their particular structure or format. Very crudely, "Extension Degrees" are those degree programs offered to adults through evening colleges and continuing education divisions, whose only immediate distinction from regular degrees is that (1) they are open to adults, and (2) the programs are offered during the evenings. These account for the bulk of degree programs offered within the "core" system of post-secondary education and I shall not consider them here. "Special Adult Degree Programs" fall into a category overlapping "Extension" and "External Degrees." That is to say, some of them are "Extension" degrees specifically offered for adults, and others are "External Degrees" offered for adults. "External Degrees" crudely can be defined as those programs where the education parameters of who, what, where, when, and how are much more open. For example, programs where a great deal of independent study is involved on the part of the individual learner. All of these types overlap and it is yet difficult to arrive at what the distinctive features of "External Degrees" are.

Figure 1



If we look at the figure above, when we talk about "External" degree programs and proposals, what I am primarily concerned with are those programs, institutions, and proposals which fall in the shaded portion of the universe of programs represented above.

Another way of trying to get at the conceptual distinction between the various types of programs can be illustrated by another set of diagrams. These diagrams are based on the principal criteria of the degree of choice exercised by the learner over what he learns, how he learns it, where he learns it, and when he learns it.

Figure 2

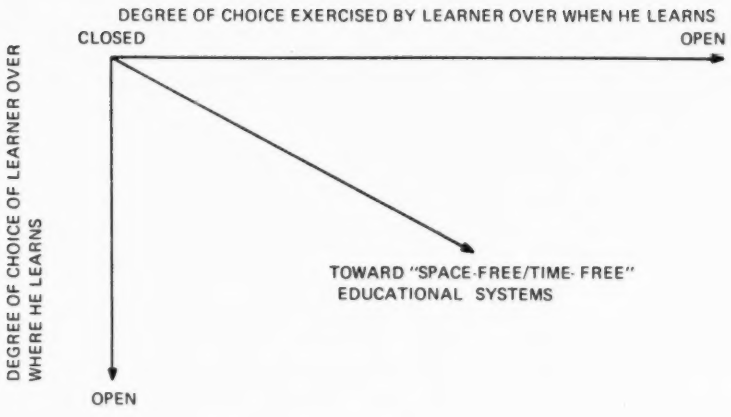
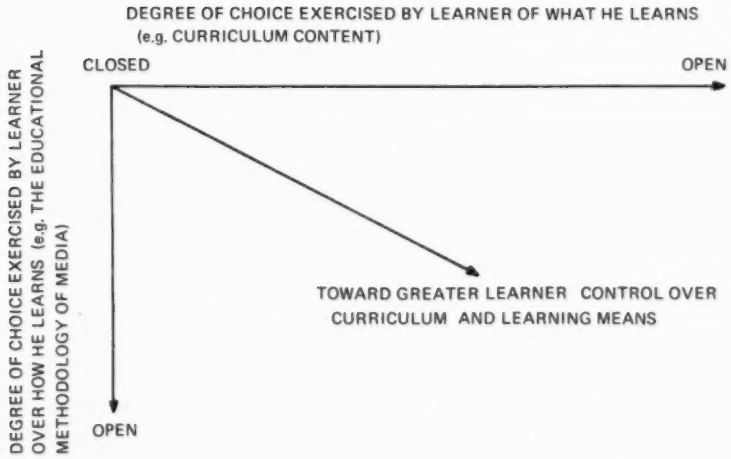

DEGREE OF CHOICE EXERCISED BY LEARNER OVER WHEN HE LEARNS
CLOSED
OPEN
DEGREE OF CHOICE OF LEARNER OVER WHERE HE LEARNS
TOWARD "SPACE-FREE/TIME- FREE" EDUCATIONAL SYSTEMS
OPEN

Figure 3


DEGREE OF CHOICE EXERCISED BY LEARNER OF WHAT HE LEARNS
(e.g. CURRICULUM CONTENT)
CLOSED
OPEN
DEGREE OF CHOICE EXERCISED BY LEARNER OVER HOW HE LEARNS (e.g. THE EDUCATIONAL METHODOLOGY OF MEDIA)
TOWARD GREATER LEARNER CONTROL OVER CURRICULUM AND LEARNING MEANS
OPEN

While the interest in non-traditional studies in post-secondary education is booming, if these crude yardstick criteria are applied to the whole non-traditional studies universe, it is discovered that there are not as many external degree programs and institutions around yet as optimists or pessimists (depending upon your point of view) would have us believe.

If Figure 1 is taken seriously, at least four kinds of external degree programs are hypothetically structurally possible:

(1) extension degrees aimed at age groups above 18 where the instruction takes place away from the main campus and perhaps employing newer instructional technologies;

(2) Special Adult Degree Programs which employ a good deal of independent study (guided or otherwise);

(3) degrees by examination, mentor-centered programs not involving residence requirements;

(4) or complex systems embodying characteristics of each of the above.

If Figures 2 and 3 are taken seriously, then the situation becomes even more complicated. For even if degree programs fall into one of the four above mentioned categories, they can further be sorted out according to the degree of <u>choice</u> exercised by the learner over the variables of what he learns, where he learns, when he learns, and how he learns it. This leaves aside the fundamental questions of:

(1) who is likely to have access to these programs;

(2) the extent to which they represent an extension of credentialism;

(3) to what extent do these programs open out curriculum areas of individual and societal need?

An elaboration of both the crude criteria I have sketched and the above questions will be addressed in a forthcoming paper.

Nevertheless, utilizing these crude criteria, let me examine briefly some of the programs now in existence and some proposals being offered currently. These by no means represent any more than a sample of the programs in existence inasmuch as their number grows faster than the information can be gathered on them. It represents no more than the beginnings of a crude conceptual framework within which to look at this emerging phenomenon.

A. Two examples of mentor-centered or "broker" institutions are Minnesota Metropolitan State College, and Empire State College.

A.1 Minnesota Metropolitan State College

Contact: Dr. David E. Sweet, President
Minnesota Metropolitan State College
Capital Center Skyway Building
5th and Minnesota Streets
St. Paul, Minnesota 55101
(612) 221-3875

Documents: Prospectus II (November 1971)
Questions and Answers about Minnesota Metropolitan State College (brochure 1971)
Carnegie Corporation News Release (January 1972)

Degrees offered: B.S.: B.A.

Abstract: Primarily aimed at adult students, MMSC will focus on urban affairs at the upper division level. It will award degrees on the basis of demonstrated competence as judged by a faculty committee rather than through accumulated credit hours or courses. The educational resources to be used will be all those available in the St. Paul metropolitan area. Upon enrolling, the student will work out with a faculty advisor a contract defining his educational goals and an individualized program in urban liberal studies or in a professional field. The various teaching-learning strategies to be used include work-study programs, internships, self-directed learning, faculty-guided inquiry and group learning activities.

A.2 Empire State College

Contact: Admissions Applications
Empire State College
State University of New York
Saratoga Springs, New York 12866

Degrees offered: A.A.; B.A.

Documents: A Prospectus for a New University College-SUNY (Feb. 1971)
Empire State College Bulletin 1971-72
Empire State College (Brochure 1972)
Learning and Degrees at Empire State (Mimeo, 1971)

Abstract: With its headquarters in Saratoga Springs, ESC will eventually have eight Learning Service Centers in each of the respective SUNY regions. The College has both its own learning resources and acts as a broker for other resources. Learning activities can fall within six modes: (1) formal courses offered by institutions and organizations other than ESC;

(2) cooperative studies; (3) tutorials; (4) organized programs of self-contained resources; (5) direct experience; and (6) independent studies. These in turn can be organized into four possible conceptual frameworks: (1) vocational/professional; (2) disciplinary/interdisciplinary; (3) problem oriented; or (4) holistic/thematic. The heart of the educational process system is that of the contract between learners and mentors. The learner and mentor negotiate a learning contract or contracts for a program of studies. An A.A. or B.A. degree is awarded by SUNY when the student completes a program of study which the faculty supports, at a level of competence which meets college standards. The student and mentor interact at one of the eight Learning Service Centers utilizing the resources available in that geographic region.

B. Several examples of Special Adult Degree Programs fall into the category of external degrees, such as those offered by Syracuse University, the University of South Florida, the State University of New York at Brockport, the University of Oklahoma, and the New York Institute of Technology.

B.1 Syracuse University--University College

Contact: Program Administrator
Bachelor's Degree Programs
101 Peck Hall
University College of Syracuse University
610 E. Fayette Street
Syracuse, New York 13202

Degrees offered: A.B. in Liberal Studies
B.S. in Business Administration

Documents: Syracuse University Independent Study, 1972, 25 pp.

Abstract: Two external degrees employing directed independent study with 3 short residential periods. There is independent study within set curriculum areas. There are only two grades: pass/fail. "During the program, advisors and instructors will rely more heavily on a continuing evaluation of the student than on traditional examinations. The chief purpose of the evaluation is to determine how the student uses the information he is acquiring . . . how he solves problems with it . . . rather than to check on how many raw facts he is learning."

B.2 University of South Florida

Contact: Dr. Kevin E. Kearny, Director
Bachelor of Independent Studies
Adult Degree Program
University of South Florida
Tampa, Florida 33620
(813) 974-2403

Degree offered: Bachelor of Independent Studies

Document: The Bachelor of Independent Studies (Brochure 1971-72)

Abstract: The BIS combines independent study at home with short residential seminars. Current offering is limited to the Bachelor's degree in interdisciplinary studies. The student does most of his work off-campus via directed reading or independent study and after completing a short-term residential seminar for each of four study areas (the Humanities, the Natural Sciences, the Social Sciences, and Inter-Area Studies), he has earned his degree. Each of these is accompanied by a comprehensive examination and an integrative seminar. Students have to be at least 25 years of age.

B.3 State University of New York at Brockport

Contact: Dr. Richard D. Elton, Director
Office of Continuing Education
Bachelor of Arts in Liberal Studies
State University College at Brockport
Brockport, New York 14420

Degree offered: Bachelor of Arts in Liberal Studies

Document: Bulletin 1971-72

Abstract: This program combines periods of area independent study with residential seminars and an area project. The periods of independent study may be completed by any one or a combination of area reading lists, discipline reading programs, transfer credit from previous college work, travel-study program, credit TV courses, correspondence courses, or proficiency examinations. Prerequisite to admission is that all candidates take the CLEP General Examinations for academic advisement purposes.

B.4 The University of Oklahoma (Norman)

Contact: Dr. Roy Troutt, Dean
College of Liberal Studies
The University of Oklahoma
1700 Asp Avenue, Suite 226
Norman, Oklahoma

Degrees offered: Bachelor of Liberal Studies; Master of Liberal Studies

Documents: BLS Brochure 1972
MLS Brochure 1972
Roy Troutt; Special Adult Degree Programs for Adults; American College Testing Program, 1971. 69 pp.

Abstract: By a combination of directed independent study with intensive residential seminars of short periods, the adult can

earn both the BLS and MLS. The time needed to complete the programs is open. In the BLS the student completes, in any sequence, area studies in the social sciences, humanities, and natural sciences. The Inter-Area, which follows, emphasizes the interrelationships of all knowledge by integrating the three areas of study. The MLS was designed for those students holding bachelor's degrees in specialized or professional fields and who desire a liberal education rather than further specialization at the graduate level. The MLS requires a thesis.

B.5 New York Institute of Technology

Contact: Dr. William W. Smith, Dean
Division of Continuing Education
New York Institute of Technology
Wheatley Road
Old Westbury, Long Island, New York 11568
(516) 626-3400

Degrees offered: Associate in Applied Science
B.S. in Management, Finance Industrial Technology, and Behavioral Sciences
Bachelor of Technology
Master of Business Administration

Document: Independent Study Programs. New York Institute of Technology Bulletin 1971-72

Abstract: The design of the above programs recognizes the value of independent study as a major motivation in the acquisition of knowledge. Through self-study, emphasis is placed on learning by the student, and the teacher as a resource and counselor rather than a disseminator of information. The scope of learning is defined while the time, place and method of learning vary with the desire and needs of the individual. The curricula are similar in content and quality to those contained in the conventional college. Instruction and certification design provides the flexibility to permit the student to learn at his own pace. The programs utilize unique combinations of independent study, intensive guidance and residential seminars. Certification by achievement replaces conventional attendance, credit and grading practices. Study can take place at home, at work, at one college or industrial location, in travel and service abroad or any combination of these. Carefully structured instructional packages begin with conventional books and study guides which are expanded into correspondence courses, TV or multi-media courses, time-sharing on NYIT's computer networks, take-home labs, audio or video playback recorders and other means. Learning and guidance centers are being designed where students may receive instruction via network, take-out instructional materials and kits and receive personalized instruction.

C. Two examples where extension degree programs shade off into the domain of external degree programs are University of Maryland's University College, and Project SURGE of Colorado State University.

C.1 University of Maryland--University College

Contact: Dean, University College
University of Maryland
College Park, Maryland 20742

Degree offered: B.A. in General Studies

Documents: University College Bulletin 1971-73 (194 pp.)
The External Degree Program of the University College of the University of Maryland, 1971 (4 pp.)

Abstract: The Bachelor of General Studies program appears to be a regular extension degree requiring completion of 120-22 credit hours with the flexibility being primarily that there are several off-campus extension centers and the manner in which credits can be earned. The maximum combined examination credit, correspondence credit, and service school credit allowed is 54 hours broken down as follows:

Examination (CLEP, or departmental) = 24
Service Schools (transfer credit) = 18
Correspondence Study (USAFI) = 12

Any combination of these will not normally be accepted for any of the final 30 semester hours leading to graduation. The curriculum content is defined and prescribed.

C.2 Colorado State University

Contact: Preston Davis, Director
Office of Educational Media
Colorado State University
Fort Collins, Colorado 80521

Degrees offered: M.S. in Civil, Electrical, Industrial and Mechanical Engineering

Document: Project SURGE Bulletin 1971-72. 14 pp.

Abstract: Project SURGE offers in-plant programs leading to an M.S. in several areas of Engineering. Video tape is the medium used to bring the courses directly to students in industry, business, and government. Normally a course session taped on campus will reach the off-campus students in time to run at their convenience two days later. As soon as each tape has been used by these students, it is returned to CSU's Office of Educational Media for reuse. Homework, quizzes, examinations, and routine administrative matters are handled at each off-campus location where people make themselves available specifically in order

to assist with academic questions, monitor examinations, etc. Also at each location is an Education Officer who handles mechanical details of video tape machine operation, video tape distribution, class scheduling and the like. Officers are asked for estimates of students for each course approximately a month before each quarter, schedules for courses being worked out on the basis of demand by off-campus students. The curriculum is organized along traditional lines.

D. Another category of the pure External Degree is the Degree by Examination, of which the Regents' External Degree of the University of the State of New York is the only currently operating example.

D.1 Regents' External Degree--University of the State of New York

Contact: Dr. Donald J. Nolan
Division of Independent Study
Regents' External Degree Program
The University of the State of New York
The State Education Department
99 Washington Avenue
Albany, New York 12210

Degrees offered: Associate in Arts (1972)
Bachelor of Business (1972)
Associate in Applied Science in Nursing (1973-74)

Documents: Brochures and program descriptions from the Division of the State of New York (1972)

Abstract: Although there are various ways of completing these degrees (e.g., transfer of college credit), the simplest way of earning them is to take a series of examinations. These can be through New York's College Proficiency Examinations (such as CLEP or AP--advanced placement) or USAFI examinations. In addition special examinations can be arranged where existing proficiency tests are not appropriate. Thus it is hypothetically possible that the ways students may acquire the information needed to pass these examinations are for all purposes infinite.

I have, in this brief document, only looked at a small number of external degree programs from the plethora of programs and proposals, and have made a crude attempt to sketch some criteria by which to characterize them. Nor have I attempted to do an analysis of the educational policy implications of any of these variations. However, from a survey of the proposals and programs in planning stages, it can be hypothesized that External Degrees may follow three lines of development:

(1) toward the examination model, exemplified by the Newman Commission's recommendation of the establishment of Regional Examining Universities; (2) models based on Great Britain's Open University, exemplified perhaps by plans under way in such states as New York, Massachusetts, Connecticut, New Jersey, Hawaii, Wisconsin, Michigan, and California; (3) consortiums of institutions employing the mentor model, such as perhaps the University Without Walls. Each of these have policy implications which are emerging that I propose to examine in a later paper. I also propose to continue to survey the details of each program or proposal as it emerges and to develop more clearly the criteria by which these programs can be sorted out and characterized.

APPENDIX II

SUGGESTED READING FOR POST-SECONDARY EDUCATIONAL PLANNING: A SELECTED AND ANNOTATED BIBLIOGRAPHY

A. Societal Change and Implications for Education

B. Present and Prospective Technologies

C. Problems and Prospects in Post-Secondary Education

D. Space/Time-Preference Higher Learning

E. Further Sources of Information

F. The Transdisciplinary Approach to Public Policy-Making

APPENDIX II

SUGGESTED READING FOR POST-SECONDARY EDUCATIONAL PLANNING: A SELECTED AND ANNOTATED BIBLIOGRAPHY

> . . . most commissions operate somewhat like a skilled surfer, riding at just the right place on the wave; the commission must be ahead of contemporary practice, but only slightly ahead. If it forges into brand new areas, it may lose support from those who do not understand what is being discussed, just as the surfer who gets too far in front of the wave will lose his momentum and speed. Thus, commissions are generally in favor of change, but not radical change. None of the recommendations of the Carnegie Commission could be considered in any sense educationally radical: indeed, most have nothing at all to do with learning and teaching, but with manpower, logistics, money, and "output," while most contemporary thinking in education today has to do with learning off-campus, the People's Yellow Pages, non-book curricula, etc. The membership of groups like the Carnegie Commission guarantees a dearth of interest in such matters, even though they have done excellent work in their areas of concern.
>
> -- Harold L. Hodgkinson (*Change*, May 1972, p.35)

The comments of Harold Hodgkinson, likening the Carnegie Commission and other such bodies to a surfer "riding at just the right place on the wave" appear to be all too true. Yet, somehow, the conventional commission behavior must change if the leaders of our society are to respond effectively to (rather than contribute to) the multiple crises of our time brought on by a society in profound and rapid transition. The Carnegie Commission may indeed be slightly--if not greatly--ahead of its various publics, but such an incremental approach does not fully address the fundamental problems of post-secondary education in the future.

It is easy to agree with Hodgkinson that the Commission has done "excellent work in their areas of concern." The massive number of Commission reports and special studies will serve as a landmark for

many years. In particular, the most recent report, *Reform on Campus: Changing Students, Changing Academic Programs* (McGraw-Hill, June 1972) is quite agreeable with the point of view that is taken here. But it is the parameters of concern that are critical, and consideration of the realms beyond the Carnegie Commission would appear to be of fundamental importance to those areas of concern that the Commission is immediately engaged with. A forthcoming Commission Report, *The Expanding Universe of Higher Education: Action Outside the Campus*, may adequately consider the concerns expressed here, making much of this policy study guide obsolete. But in the event that this Commission Report falls short of fully touching on the problems and possibilities of S/T/C-P higher learning, this study guide will serve to stimulate the necessary synthesis and analysis that is urgently needed.

* * *

It is doubtful that we can do without commissions as pre-legislation legitimation agencies, but greater attention to fundamental issues, greater foresight in anticipating problems, and greater courage in exploring alternatives could result in a substantial difference in the nature of our higher learning experiences and ultimately in the nature of our society. Greater foresight and imagination could obviate the need for some future commissions, while changing the process of educational planning from an essentially reactive one to an inventive one. Such a process would be aligned with or ahead of the waves that are shaping the wider society, rather than riding the wavelets that are presently seen by those who shape our higher learning. If a more adventuresome commission is too far in front of its publics, then the need for elite adult education is clearly indicated. Moreover, in this era of radical change, small doses of "future shock" in the present may be preferable to large and unintended doses in the near future.

Bibliographies often provide a good indication of the parameters of one's world view, or, in the idiom of the young, "where one's head is at." A bibliography indicates the range of knowledge or

information that one considers to be legitimate and germane to the problem under consideration. The subsequent list attempts to sketch a transdisciplinary, systemic, policy-relevant, future-oriented approach, as distinguished from the subdisciplinary, fragmented, present-bound approach that characterizes virtually all contemporary deliberation on education at every level. The transdisciplinary approach considers all knowledge that is relevant to a problem--including holistic writers, interdisciplinary writers (who accept the knowledge of two or more well-defined fields), and writers in conventionally defined disciplines or sub-disciplines. It attempts to view problems in the context of both space and time. In contrast, the sub-disciplinary approach is receptive only to the knowledge of colleagues in the field, and is isolated in space (i.e., from a consideration of broader societal concerns) and time (i.e., from a long-term dynamic perspective). The transdisciplinary approach may well come to be considered as the new rationality of the post-industrial era, while the subdisciplinary approach may be seen as increasingly irrelevant and irrational as the industrial era recedes (See Berghofer, Ferkiss, Green, Harman, Platt, and Wheeler--Nos. 3, 18, 22, 20, 13, and 23 in bibliography). It is ironic that the Carnegie Commission, charged with shaping the future of our institutions of knowledge production and dissemination, has ignored much of the significant thinking in our society.

What difference would result from a transdisciplinary approach? Only one example need be provided: the fundamental assumptions arising from different world views as to learning needs, the capacity of individuals to meet these needs, and the capacity of existing institutions to help them would be significantly altered. The assumptions arising from a transdisciplinary systemic approach are that considerable learning is required of the entire population in the decades ahead, different abilities exist but most people can learn far more than they are presently encouraged to learn, and that existing institutions designed in a different era are inadequate to the task. In contrast, the assumptions of conventional liberalism, which pervade virtually all deliberation on education, are that learning needs can be defined by present demands, more people can learn (thus the emphasis

on "open enrollments"), and that present institutions and methods of instruction are generally adequate to the task. In further contrast, one might consider the conservative and radical positions, which are virtually never considered in educational debate, despite liberal rhetoric about openness and dialogue. Conservatives assume limited abilities in people and that our institutions are already overcrowded with those who do not benefit from didactic higher learning. In contrast, radicals assume that all people are capable of significant and independent personal growth, and that present institutions are irrelevant, counterproductive, and/or supportive of "capitalist imperialism." The transdisciplinary approach borrows from each of these three perspectives, and is receptive to appeals for genuine efficiency, holistic empiricism, and humanism.

To further understand the transdisciplinary approach, a few comments are warranted on the six categories in this bibliography.

A. Societal Change and Implications for Change. The documents listed here are but a fraction of the "futures" literature that has appeared in recent years. The selection has been limited to those items that have a significant bearing on education, and an attempt has been made to briefly transmit the concerns of the authors to those, such as members of the Carnegie Commission, who might not otherwise listen (in that we lack transdisciplinary problem-oriented information systems and the norms of subdisciplinary attentiveness are still widely prevalent among "men of knowledge"). These analyses are without substantial rebuttal in the literature. The Carnegie Commission, other commissions, and independent investigators should consider these statements and issue a rebuttal if they do not believe that we have an unprepared society (Michael, No. 1); that we are future-shocked (Toffler, No. 4); that we cannot understand and cope with our technology (Ferkiss, No. 18; Muller, No. 14); that our information systems are deficient (Conference Board, No. 10; OECD, No. 11); that most of our scientific effort is trivial (Platt, No. 13; Ways, No. 8); that we are entering a knowledge-based society (Carroll, No. 6; Drucker, No. 7); that fragmented thinking has led to our environmental crisis (Commoner, No. 17); that we are undergoing

a profound transition from a linear industrial era to a cybernetic communications era (Theobald, No. 26); that we may face a wide variety of highly undesirable futures (EPRC Stanford, No. 19); and that in the very long run education will occupy much of our lives (Gross, No. 22; Lundberg, No. 31; Wagar, No. 32). If the Carnegie Commission does not consider these analyses to be plausible representations of the present and the future, they should so indicate. As Toffler argues (No. 3), educators require some plausible vision of the future society.

B. Present and Prospective Technologies. The Carnegie Commission has indeed issued a recent report on educational technology, but again there is a problem of parameters of concern. Should we plan technologies to support existing institutions of higher learning, or, as suggested by Parker and Dunn (No. 35), should we promote a comprehensive information utility as a national goal? To what degree would these two paths of action conflict with each other, as well as complement each other? Here is a salient instance of the fragmented planning that has led to many of the crises that we now suffer.

C. Problems and Prospects in Post-Secondary Education. The items listed here are generally transdisciplinary perspectives on post-secondary learning. There is, of course, a rapidly growing literature in higher education, but virtually all of it--even the most trenchant critiques--is confined to the problems of campus-based education (see *Alternative Futures for Learning*, No. 120). Several attempts at extrapolative forecasting are notable for their failure to even consider space/time-preference learning, e.g., Alvin C. Eurich (ed.), *Campus 1980* (Delacorte, 1968), Lewis B. Mayhew (ed.), *Higher Education in the Revolutionary Decades* (McCutchan, 1967), and Lewis B. Mayhew, *Colleges Today and Tomorrow* (Jossey-Bass, 1969). It is sufficient to note that the parameters of "the system" have irrevocably changed, and that we are entering a period of indeterminate duration when the boundaries of "the system" will be blurred or uncertain.

D. Space/Time/Credit-Preference Higher Learning. The items listed here are judged to be the more relevant books and articles in a rapidly growing literature on non-traditional study, external degrees and England's Open University. As the cutting edge of higher learning (or the hottest fad), the S/T/C-P literature will surely proliferate in the next few years, and it would be highly desirable if someone, somewhere, would establish a comprehensive clearinghouse. Much of this literature, unfortunately, is non-critical.

E. Further Sources of Information. There are innumerable articles on various aspects of space/time-preference learning, virtually all lacking a contextual tie-in with broader societal concerns. For those who wish to pursue the details, various bibliographies and newsletters are listed.

F. The Transdisciplinary Approach to Public Policy-Making. The items listed here have to do with the methodology of futures study (or futuristics or futurology), policy sciences, and general systems theory. These emergent transdisciplines--especially when combined--will hopefully lead to a new and higher rationality in the future.

* * *

In summation, the literature arrayed here suggests the outlines of investigation and responsible criticism that will continue beyond the Carnegie Commission. The societal transformation that is taking place--and must take place--cannot be ignored. As concluded by Willis Harman (No. 21), "we can choose either to understand and move with the tides of history, whatever they may be--or attempt to resist them."

A. SOCIETAL CHANGE AND IMPLICATIONS FOR EDUCATION

1. MICHAEL, DONALD N. *The Unprepared Society: Planning for a Precarious Future.* Foreword by Ward Madden. The John Dewey Society Lecture--No. Ten. N.Y.: Basic Books, 1968. 132 pp. $4.95.

   Explains the need for looking at the future, who does it, how it is done, and problems encountered. The final chapter, "Some Challenges for Educators," discusses implications for education, e.g.: "We must educate so people can cope efficiently, imaginatively, and perceptively with information overload" (p.108).

2. BERGHOFER, Desmond E. *The Future: Its Challenge to Twentieth Century Man. A Review of Key Works on Social and Educational Futures.* Edmonton: University of Alberta, Faculty of Education, January 1972. 35 pp. Mimeo.

   An excellent integration of many works with the intent of demonstrating the dynamic relationship of education with other activities, all of which are interacting to shape the future of mankind. "Running through the works reviewed in this paper has been the theme that a potentiality currently exists for a shift away from a vision of reality that has dominated the thinking of Western man for several centuries" (p.33).

3. TOFFLER, Alvin. "Education and Emerging Superindustrialism" in House Committee on Education and Labor, *Alternative Futures in American Education* (see No. 70), pp. 54-66.

   An extensive description of the emerging superindustrial society (knowledge increasingly central to production, a process concept of resources, work performed at home) and the three choices that the universities (presently "a holding operation") now face: continuation of the status quo, closing down the schools entirely, and instituting a learn-while-you-serve system of universal service whereby "Edu-service repairs the break between theory and practice."

   Toffler's comments on educational planning deserve note:

   --"All education systems proceed from some image of the future, whether this is recognized or not. The assumption made is that the learning transmitted to the learner will in some way prove useful to him in the future. However, the present education system and its leaders have no conception of the future of society--other than a blind and mistaken expectation that it will be 'more of the same'" (p.58).

   --"A sense of the future, a sense of its possibilities, likelihoods, and dangers, becomes, in a high-change society, an absolute survival necessity" (p.65).

   --"It seems to me that the future must be a starting point--

some sense of where we are going and where we want to go. It must be the starting point of any rational educational system . . . the image of the future held by most educators must be radically revised and the way to begin is by making their assumptions about tomorrow explicit and hence subject to debate. Only after this is done can a sensible set of educational goals be defined" (p.66).

These statements cogently suggest the fundamental problems underlying the work of the Carnegie Commission.

4. TOFFLER, Alvin. *Future Shock*. N.Y.: Random House, 1970. 505 pp. $8.95.

A well-known popularized overview on social change, with several appropriate comments on S/T-P learning: "Long before the year 2000, the entire antiquated structure of degrees, majors and credits will be a shambles" (p.241). "Failure to diversify education within the system will simply lead to the growth of alternative educational opportunities outside the system" (p.243). "This dispersal in geographical and social space must be accompanied by dispersal in time. The rapid obsolescence of knowledge and the extension of the life span make it clear that the skills learned in youth are unlikely to remain relevant by the time old-age arrives. Super-industrial education must therefore make provision for life-long education on a plug-in/plug-out basis" (p.361).

5. BENNIS, Warren G. and Philip E. SLATER. *The Temporary Society*. N.Y.: Harper & Row, 1968. 147 pp.

Six separate essays by one or both of the authors "to force into view certain changes affecting vital aspects of our key institutions: organizational life, family life, interpersonal relationships, and authority." In the first essay, democracy is seen as inevitable--the necessary social system of the electronic era. In the second essay, Slater looks at change and the democratic family, noting that "experiential chasms between age cohorts serve to invalidate parental authority" (p.24). The topics that follow concern the new style organizations beyond bureaucracy, social consequences of temporary systems, new patterns of leadership for adaptive organizations, and in the final chapter on the temporary society, the necessary education is prescribed for the art and science of being more fully human: how to get love, to love and to lose love; how to enter groups and leave them; how to attain satisfying roles; and how to cope more readily with ambiguity. "For the most part we learn the significant things informally and badly, having to unlearn them later on in life when the consequences are grave and frightfully expensive, like a five-day-a-week analysis" (p.127).

6. CARROLL, James D. "Noetic Authority," *Public Administration Review*, 29:5, Sept.-Oct. 1969, pp. 492-500.

"This paper suggests that the state is withering away in a psychological sense because of an increase in awareness in

contemporary society and a growing questioning of authority. It also suggests the state is withering in a technological sense because of a failure to use organized knowledge to satisfy expectations and values. It then suggests that a new form of the state, the 'innovative state' characterized by a new form of authority, may in time emerge" (Abstract). "Noetic" refers to "the increase in awareness--consciousness--of man's social and physical environment that is occurring throughout much of the world" (p.492). Noetic politics is the politics of knowledge and awareness in an increasingly complex society that is shifting to a mental base of operations and a collegial form of authority. The implications for educating institutions are not discussed, but are obviously profound.

7. DRUCKER, Peter F. *The Age of Discontinuity: Guidelines to Our Changing Society*. N.Y.: Harper & Row, 1969.

An important book focusing on four major discontinuities: new technologies, the world economy (including a chapter on "The Global Shopping Center"), a society of large organizations (including a chapter on "The New Pluralism"), and the changed position and power of knowledge such that we are becoming a knowledge society--"the greatest of the discontinuities around us." This final section on knowledge (Chapters 12-17) is of immense importance to educators.

Drucker forecasts that the knowledge industries will account for one-half of the total national product in the late 1970's (p.263), and argues that knowledge, rather than agriculture and mining, has now become the primary industry supplying the essential and central resource of production. Under these circumstances, "It is not that we cannot afford the high costs of education; we cannot afford its low productivity" (p.334) and economic necessity will therefore force a revolution. "In a knowledge society, school and life can no longer be separate" (p.324). The diploma curtain is seen as a problem, as is the prolongation of adolescence by the schools and the inherent conflict between extended schooling and continuing education.

Because of our knowledge needs, "We face an unprecedented situation in which we will have to set priorities for new knowledge" (p.365) and the existing disciplines will not remain appropriate for long, if knowledge is to have a future.

8. WAYS, Max. "Don't We Know Enough To Make Better Public Policies?" *Fortune*, April 1971, pp. 64+.

Asks whether modern society is "in danger of rattling apart because the progress of knowledge is so uneven in its application to the world of action."

"There is considerable evidence that the more we learn the more we need to know. Few scientists think they are running out of questions. And it is the common observation of non-scientists that society in action faces more 'problems' now

than it did fifty years ago" (p.66).

Forecasting business activity and the impact of government policy, despite the advances of economics, has not become easier or more successful because "The wild cards multiply even as economists raise their skill in dealing with the determinable elements" (p.67). One of the reasons for this paradox is that contemporary society confronts new and formidable areas of ignorance, leading to "a new kind of inertia" where change is resisted because we cast about for a higher degree of certainty. "Such, however, is the inescapable context of all policy making in a truly complex and rapidly changing society. Either we accept the framework of acting on the basis of very incomplete knowledge or else we condemn ourselves to retaining unchanged those institutions, like the present welfare system, for which we have lost respect (p.118).

This condition is further aggravated because "Many scientists are unwilling to drop their fruitful specialized research and commit their careers to the bewildering complexities of transdisciplinary attack on the new areas of ignorance disclosed by the environmental challenge" (p.125, or, for that matter, new areas of ignorance disclosed by the arms race, population growth, health, drugs, housing, and, of course, education).

It is concluded that "The U.S. can and must do a better job of selecting specific lines of knowledge to be emphasized and specific lines of action on which to concentrate . . . The real complexities of our present and future call for a public temper both more humble and more resolute" (p.128).

9. MARKEL, Lester. *What You Don't Know Can Hurt You: A Study of Public Opinion and Public Emotion.* Washington: Public Affairs Press, 1972. 288 pp. $7.50.

Asserts that only 20% of the population is "reasonably well-informed," 20% is in the "moron category," and another 20% "are ignorant and unwilling to learn." Some 40% are not well-informed, but are "willing to learn" (p.32). Who will help?

10. The Conference Board. *Information Technology: Some Critical Implications for Decision-Makers.* Conference Board Report No. 537. The Conference Board, Inc., 845 Third Ave., New York, N.Y. 10022, 1972. 240 pp. $25 for Non-Associates; $5 for Associates and Educational.

A report developed by 42 experts serving on 8 panels devoted to information technology, the individual, business, anti-trust policy, education, government and politics, and the changing information environment. The chapter on education by Marvin Adelson discusses topics such as the shift in education from the communication of knowledge to the utilization of knowledge, libraries as the core of the education process, the trend to transform portions of education into a "goods" industry by the creation of media packages, the distinction between

"real" and "informational" environments and possible initiatives for government and education. The final chapter by John McHale provides a variety of topologies on potential impacts of the new information environment, while discussing global aspects and the need for planetary policies.

11. Organisation for Economic Co-operation and Development. *Information for a Changing Society: Some Policy Considerations.* Paris: OECD, 1971. 48 pp. $1.75.

Report of an Ad Hoc Group on Scientific and Technical Information, convened to deal with the present fragmented state of information systems at a time when information is increasingly "the key to the wise management of the future." Many recommendations are made; of particular interest is the one "that the re-evaluation of educational requirements of modern societies take full account of the need for information transfer systems better adapted to the continuing re-education of adults. Totally new institutional arrangements must be evolved, involving opportunities and motivation for education concurrent with daily activities. Research to foresee and prepare for these developments is urgently needed" (p.47).

12. CHASE, Stuart. "Green Money or Green Earth?" *The New York Times* (Op-Ed Page), June 24, 1972.

The problems of our time are cogently summarized here in less than 500 words. "A contest is clearly gathering between the partisans of the gross national product and of the quality of life . . . I believe there are eight major steps which sooner or later must be taken if the planet is to remain viable." Briefly summarized, the steps are zero population growth, zero industrial production growth, recycling and conserving material resources, an adequate budget of the five prime essentials (food, shelter, clothing, health services, education) available for every human being, a decline in the consumption of material goods in affluent societies, a sharp increase in the social sciences "to help us deal with the severe cultural changes that are surely coming," applied science to be carefully researched for side effects, and some kind of organized world community.

The implications for educational planning are that a system can be designed that impedes or promotes these apparently necessary steps. New knowledge needs are strongly suggested by Chase, but it is doubtful that the present organization for the production and dissemination of knowledge will satisfy these needs.

13. PLATT, John. "What We Must Do," *Science*, 166: Nov. 28, 1969, pp. 1115-1121.

A concise and powerful overview of the multiple crises that we are confronting, with the view that "it has now become urgent for us to mobilize all our intelligence to solve these problems if we are to keep from killing ourselves in the next

few years." Two overview charts are provided (for the U.S. and the World), indicating the priority of problem areas and the estimated time to crisis, broken down in three future periods (1-5 years, 5-20 years, and 20-50 years). For the U.S. the problem areas, in order of priority, are total annihilation, great destruction or change (physical, biological or political), widespread almost unbearable tension (slums, race conflict), large-scale distress (transportation, urban blight, crime), tension producing responsive change (water supply, privacy, drugs, marine resources), other problems important but adequately researched (military R&D, new educational methods), exaggerated dangers and hopes (mind control, heart transplants), and noncrisis problems being overstudied (man in space and most basic science). It is concluded that "The task is clear. The task is huge. The time is horribly short. In the past, we have had science for intellectual pleasure, and science for the control of nature. We have had science for war. But today, the whole human experiment may hang on the question of how fast we now press the development of science for survival." Also see "Councils of Urgent Studies," Science, Aug. 25, 1972.

14. MULLER, Herbert J. *The Children of Frankenstein: A Primer on Modern Technology and Human Values*. Bloomington: Indiana University Press, 1970. 431 pp. $10.00.

After providing historical background, the impact on society and culture is explored in separate chapters on war, science, government, business, language, higher education, natural environment, urban environment, mass media, the traditional arts, religion, and people. The chapter on higher education observes the consequences of specialization and "the spell of scientific methods," with the view that "most college graduates--whatever their specialty--have too limited an understanding of our technological society for potential leaders" (p.230).

15. McHALE, John. *The Future of the Future*. N.Y.: George Braziller, 1969. 322 pp. $7.95.

A wide-ranging overview, aided by scores of charts and photographs, with particular emphasis on ecology, technology, and planetary resources. Chapter 1 provides a good summation of future-study in the context of a transition toward a world-man image, and Chapter 5 continues with a discussion of individual futurists and organizations studying the future (a continuing interest of McHale). The final chapter discusses various aspects of the emerging planetary society, concluding that "we must understand and cooperate on a truly global scale, or we perish" (p.300).

16. MEADOWS, Donella H., et. al. *The Limits to Growth*. A Report for The Club of Rome's Project on the Predicament of Mankind. N.Y.: Universe Books/Potomac Associates, 1972. 205 pp. $2.75 paper.

The much-publicized, controversial, computer-based study of population, pollution, and resources--with the central message that "The earth's interlocking resources--the global system of nature in which we all live--probably cannot support present rates of economic and population growth much beyond the year 2100, if that long, even with advanced technology" (back cover).

And the educational implications necessarily follow: "Achieving a self-imposed limitation to growth would require much effort. It would involve learning to do many things in new ways. It would tax the ingenuity, the flexibility, and the self-discipline of the human race" (p.170).

". . . any deliberate attempt to reach a rational and enduring state of equilibrium . . . must ultimately be founded on a basic change of values and goals at individual, national, and world levels.

"This change is perhaps already in the air, however faintly. But our tradition, education, current activities, and interests will make the transformation embattled and slow. Only real comprehension of the human condition at this turning point in history can provide sufficient motivation for people to accept the individual sacrifices and the changes in political and economic power structures required to reach an equilibrium state" (p.195).

17. COMMONER, Barry. *The Closing Circle: Nature, Man and Technology.* N.Y.: Knopf, 1971. 326 pp. $6.95.

This well-received popularized volume by a leading ecologist is one of many recent books on our growing ecological crisis. There are two important implications for S/T-P education that can be drawn. First, Commoner argues that the cause of the environment crisis is technology and the resulting ignorance of fundamental concerns such as the ecosphere. "The natural tendency to think of only one thing at a time is the chief reason why we have failed to understand the environment and have blundered into destroying it" (p.26). And our fragmented sub-disciplinary thinking has resulted from the manner in which our educating institutions are organized. Secondly, Commoner estimates an annual cost of survival of about $40 billion per year--which would necessarily require economies in other sectors of society, including education.

18. FERKISS, Victor C. *Technological Man: The Myth and the Reality.* N.Y.: George Braziller, 1969. 352 pp.

An overview of the vast changes transforming society and necessary cognitive changes in man involving a new naturalism, a new holism, and "a new immanentism."

19. Educational Policy Research Center at Stanford. *Alternative Futures and Educational Policy.* Menlo Park, Calif.: Stanford Research Institute, EPRC Memorandum Report, Jan. 1970. 43 pp.

Tentatively summarizes the findings of a preliminary set of alternative future histories prepared at EPRC/Stanford, and suggests implications for educational policy. Of some two score future histories (ranging from Manifest Destiny and Exuberant Democracy to Authoritarian Recession, "1984"/ Theocracy, and Collapse) "there are very few which manage to avoid one or another kind of time of serious troubles between now and 2050. The few that do, require a dramatic shift of values and perceptions with regard to what we came to term the 'world macroproblem.' This macroproblem will be the predominant concern of the foreseeable future, for all the alternative paths. It is the composite of all the problems which have been brought about by a combination of rampant technology application and industrial development together with high population levels" (p.6).

"The overall message is clear. It is not yet time to redesign education for ecstatic individuals in a carefree world. To the extent that one believes that the analysis of the roots of the 'world macroproblem' holds up, to that extent he will believe that the paramount educational task for the developed world is the radical altering of the dominant basic premises, perceptions, images, and values of the culture and that the paramount task for the nation is the development of a sense of purpose and unity. To that extent, also, it will seem essential that we re-examine all our present educational institutions, practices, and commitments to determine how their priority is altered in view of these future outlooks (p.42).

20. HARMAN, Willis W. "The Nature of Our Changing Society: Implications for Schools," in House Committee on Education and Labor, *Alternative Futures in American Education* (see No. 70), pp. 6-53.

This lengthy essay by the Director of the Educational Policy Research Center at Stanford is an excellent example of applying the transdisciplinary "futures perspective" to questions of educational policy. Harman discusses long-term societal trends, beliefs and values in transition, manifest revolutionary forces, a possible underlying conceptual revolution leading to the beginnings of a new science, meta-issues of the future relevant to educational policy (crises in human image, authority, economic values, and pluralism), and two contrasting overall forecasts: between a second-phase industrial society and a person-centered society. Implications for education are then discussed, after stating that "The basic issue for education is the choice of goals; all else follows this" (p.44). Harman states that "Unfortunately, significant changes in education do not come as direct consequences of such rational arguments" (p.46), but he nevertheless makes them in conclusion, arguing that a drastic and rapid shift in orientation is imperative and that the challenge of the times is "an educational task of the highest priority."

21. HARMAN, Willis W. "Key Choices of the Next Two Decades (An Exploration of the Future)," *Fields Within Fields...Within Fields*, 5:1, 1972, pp. 82-92. (Available from the World Institute Council, 777 United Nations Plaza, New York, N.Y. 10017, for $1.00. Other notable articles in this issue include "The Methodology of Pattern" by Julius Stulman [see No.143], "The Highest State of Consciousness" by John White, and "Communicating Holistic Insights" by R. F. Rhyne.)

Argues that a major historical transformation is under way, in a distinct contrast to the widely held view promulgated by Herman Kahn and Anthony Wiener in *The Year 2000* (Macmillan 1967) that the available alternative futures comprise modest deviations from a "long-term multifold trend." But a fundamental problem faces us, for "perfectly reasonable micro-decisions currently are adding up to largely unsatisfactory macrodecisions" (p.87). (Carnegie Commission please note.)

Concludes that: "The extent to which our deliberate actions can affect the future is undoubtedly limited . . . Quite apart from our desires, the transformation postulated in these remarks is either upon us or it is not--it is not our choice to make. However, we can choose either to understand and move with the tides of history, whatever they may be--or to attempt to resist them. Upon that choice may rest in great measure the state of business in 1990--and beyond" (p.92).

22. GROSS, Bertram M. "Planning in an Era of Social Revolution," *Public Administration Review*, XXXI:2, May/June 1971, pp. 259-297. (Single copies of this special issue, a symposium entitled "Changing Styles of Planning in Post-Industrial America" edited by Herman Mertins Jr. and Bertram M. Gross, are available for $2.00 from the American Society for Public Administration, 1225 Connecticut Ave., N.W., Washington, D.C. 20036. The Gross essay alone is well worth the price.)

This lengthy essay by one of the leading scholars in national planning, social indicators, and systems theory, deserves serious attention. Gross discusses the acceleration of cumulative system change over the history of mankind, with a consideration of various social revolutions in the past. The major elements of the emerging service society are then outlined, with attention paid to changing technologies, changing social structures, our emerging "nation city" and world society, and the deepening crises of survival, aspirations, fragmentation, and authority.

The "grand alternatives of a new era" are seen as techno-urban fascism or humanist reconstruction. It is cautiously noted that some think that fascism has already happened in America while others affirm that it could never happen here. "Both of these views, unfortunately, underestimate the possibility of a new-style fascism that might go far beyond anything in our past experience in developing highly organized foreign expansion and domestic repression" (p.285). This neo-fascism

(also referred to by Gross as "Friendly Fascism" in a previous article in *Social Policy*, Nov.-Dec. 1970) would thrive on rationed welfare state benefits, accelerated consumerism, credentialized meritocracy, market administration, and various technocratic evils. In contrast, a humanist post-industrialism would feature new structures of power providing new kinds of participation in the allocation and use of resources, shifts in values (e.g., toward cooperation instead of mastery), and "a more rational rationality" that replaces value-free or value-explicit decision-making with value-creating decision making and develops the concept of systems synthesis and an action concept of rationality. In conclusion, the possibilities of a truly civilized post-service society are sketched, one where the bulk of the employed population would be involved in non-routinized informational activities, and the boundaries between work and education obliterated as organized and unorganized learning becomes a continuing part of all human activity.

23. WHEELER, Harvey. *The Politics of Revolution*. Berkeley: The Glendessary Press (2512 Grove), 1971. 305 pp. $6.95.

This book makes a similar argument to that of Gross and Harman, but lacks somewhat the breadth and conciseness of the above two.

Wheeler, a Senior Fellow at the Center for the Study of Democratic Institutions, takes a broad view of politics "similar to that of the ancients, for whom politics was the architectonic science." The book concerns the American Revolution of the 1970's, with revolution defined as "the dialectic of two competing cultural systems warring against each other in the same society" (p.9) and as a condition of systemic rather than incremental change. "Revolutionary crisis has the function of revealing the inadequacy of mere reform and demonstrating the necessity for overall structural, or revolutionary, transformation" (p.viii).

Chapters and sections of chapters are devoted to the limits of confrontation politics, the rise and fall of Marxist ideology, the rise and fall of American liberal democracy, the obsolescence of the American party system, and the nature of the "Intentional Society" that is advocated (with particular emphasis on its necessarily revised constitution).

In this Intentional Society, "Education, in its constitutional meaning, is thought of not in terms of schools and colleges only but in terms of the general responsibility of society . . . the society's responsibility for the state of the public mind. This responsibility will be exercised through such things as the long-proposed TVA for mass media, which would spread the concept of a lifelong education that is essential to the exercise of the office of citizen" (p.259).

Brief comments are made on pp. 293-295 on the advent of personalized computer systems, the cybernated multimedia

home, and the era of the "Learning Society" that is technologically possible today (e.g., see Parker and Dunn, No. 35). But it is not only media alone, but the proper content: "a new science of politics combining ecology, information theory and dynamic programming, all brought together in an organic or biology-oriented framework, rather than in a mechanistic one. Beyond this we shall have to devise an applied political science capable of transmitting this ecological wisdom to the average citizen for rational and deliberate application at the polls" (p.36).

Dangers are noted, however, and the book concludes with a discussion of "The Manipulative Spector," as contrasted with the prospects for "A New Age of Wisdom."

24. FULLER, R. Buckminster. "World-Around Problems: 10 Proposals," *The New York Times*, June 29, 1972, p. 37.

On the occasion of turning over his life-work to a new non-profit corporation, the Design Science Institute, Fuller has summarized the ten most crucial problems facing the world. Of these, the highest priority of all is education revolution.

"An education revolution based on synergy . . . requires the reversal of our present system of compartmentation of knowledge and of going from the particular toward the ever more special."

"The education revolution requires the elimination of all academic tenure."

"Learning is to be accomplished by use of cassette-tape type video documentation with the individual child learning to find the most competent answers to the child's own questions."

Other "problems that have to be solved by bloodless design science revolution" are: conversion of world accounting system, elimination of property by making ownership onerous, world democracy by electronic referendum, elimination of all world sovereignties, theoretical exploration through world game, realization of design science competence, recognition of humanity's unique functioning in universe, identification of mathematical coordinate system of universe, and philosophical realization that physical is not life.

Crackpot notions? Fuller has been ridiculed in the past, but many of his older ideas (such as the geodesic dome) are now accepted. Will his newer ideas (which are not unlike many of the others expressed in this bibliography) be widely accepted several decades hence?

25. ILLICH, Ivan. *Re-Tooling Society*. Cuernavaca, Mexico: CIDOC (Apdo.479), April 15, 1972. 53 pp., draft. (Doc. A/E 72/369)

Rough draft thinking by one of the major radical critics of our time. As a framework for debate on the upper limits to growth of industrial societies, Illich outlines six major forms in

which tools (broadly defined to include all man-made systems) threaten men: damage to environment (destroying the balance of life), tool monopoly (destroying the balance between autonomous activity and institutionalized energy), overprogramming (destroying the balance of shared vs. non-shared learning), social polarization (increasing the spread between the powerful and those bereft of power), devaluation, and negative returns.

"A Convivial Society" is advocated, designed to allow all of its members "the most autonomous action by means of tools least controlled by others . . . the growth of tools beyond a certain size of power increases regimentation, dependence, exploitation and impotence" (p.5). Conversely, tools foster conviviality if easily used by anybody, simply designed, and small enough to be used by individuals. This is not to deny the role of science: "The call for a re-tooling or re-structuring of society is neither a romantic hankering after a pastoral ideal, nor a new form of Luddism" (p.8). Critics will nevertheless see it as such.

26. THEOBALD, Robert (ed.). *An Alternative Future for America II.* Revised and Enlarged Edition. Chicago: Swallow, May 1970. 199 pp. $6.00; paper $2.00.

Two-thirds of the book incorporate new material, including a "working appendix" listing various organizations studying alternative futures. Education (pp. 157-182) is defined as "the process of providing each individual with the capacity to develop his potential to the full." Four levels of learning are viewed: the first level is the simple perception of a fact; the second occurs when two facts are interrelated; the third (to which present systems of education are geared) makes it possible to improve our level of performance within our present perceptions of the state of the universe. "We are beginning to perceive the need for fourth-level learning--learning which permits us to change our perceptions about the nature of the world in which we live . . . the styles which make possible fourth-level learning are profoundly contradictory to those needed in third-level situations."

27. THEOBALD, Robert. *Habit and Habitat.* Englewood Cliffs, N.J.: Prentice-Hall, 1972. 277 pp. $8.95.

A broad and challenging overview of the transition from the Industrial Era to the Communications Era, and from linear thinking to systemic thinking, where one perceives connections, interdependencies, and reciprocal relationships.

28. BLAKELY, R. J. *Toward a Homeodynamic Society.* Boston: Center for the Study of Liberal Education for Adults, 1965. 54 pp. $1.50. (Notes and Essays on Education for Adults, No. 49)

"This essay is an attempt to answer two big questions: 'What are the important social trends? What are their implications

for education?' . . . The major trend of the present age is to increase knowledge and power. The major problem is the widening gap between knowledge and power and our ability to control them. The major implication is that our learning to control knowledge and power must overtake our learning to increase knowledge and power" (p.iii). In going on to advocate the homeodynamic, inventive society, Blakely distinguishes between three types of learning (hereditary-cultural, adaptive cultural, and inventive-cultural), and the necessary learning for the adult as parent, citizen, and worker.

29. GARDNER, John. *No Easy Victories.* N.Y.: Harper & Row, 1968. 177 pp.

A collection of excerpts from Gardner's speeches and writings, with important insights about the future of our society and the necessary directions for effective action. Particular attention is paid to education (pp.67-112) for it is felt that "in terms of our national future, teaching is the most important profession" (p.95). The comments concerning life-long learning, which has "no adequate reflection in our social institutions," are especially of interest.

30. SCHON, Donald A. *Beyond the Stable State.* N.Y.: Random House, 1971. 254 pp. $7.95.

An important work on the central problem facing Western civilization today: rapidly accelerating change. As an alternative to perpetual disruption, Schon argues that businesses, governments, and social institutions must become "learning systems."

31. LUNDBERG, Ferdinand. *The Coming World Transformation.* Garden City, N.Y.: Doubleday, 1963. 395 pp.

A broad and long-term assessment of social trends, with major attention paid to learning needs and brainpower as a matter of national survival such that continuing adult higher education will become the largest segment of the educating system.

32. WAGAR, W. Warren. *Building the City of Man: Outlines of a World Civilization.* A World Order Book. N.Y.: Grossman, 1971. 180 pp. $3.95 paper.

The first volume in the World Order Models Project, sponsored by the World Law Fund, Wagar describes a viable world society of the 21st century in which "the world citizenry will devote at least half of its active hours to learning, both inside and outside the formal educational structure . . ." (p.122).

B. PRESENT AND PROSPECTIVE COMMUNICATIONS TECHNOLOGY

33. Carnegie Commission on Higher Education. *The Fourth Revolution: Instructional Technology in Higher Education.* A Report and Recommendations. N.Y.: McGraw-Hill, June 1972. 106 pp. $1.95.

A competent and restrained overview of the new technologies, urging their development through "at least seven regionally organized cooperative learning-technology centers not only for research and development activities, but also for production and distribution of instructional programs" (p.5).

Chapters are devoted to A Brief Review of Instructional Technology (covering film, multimedia classrooms, self-instruction units, radio, TV, and CAI), Libraries and the Information Revolution (covering miniaturization, computers, libraries as learning centers, and networks for communications and information); The Penetration of the New Technology (with a table derived from a MIT study indicating faculty and technologists' mean predictions of routine use of nine basic technologies), Directions for New Effort, Impacts on Faculty, Impacts on Students, and Costs of Instructional Technology.

In 1967, Eric Ashby identified four revolutions in education: the shift from parents to teachers, adaption of the written word, the invention of printing, and developments in electronics. The following article by Asimov also views "The Fourth Revolution" but in terms of its global implications--a matter not considered by the Carnegie Commission.

Subsequent items mentioned in this section of the bibliography do not necessarily conflict with the observations of the Commission, but tend to be concerned with educational impacts outside of established institutions. The Commission recognizes that "Off-campus instruction of adults may become both the most rapidly expanding and the most rapidly changing segment of post-secondary education" (p.4). The major question would appear to be the proportion of off-campus instruction to the entire post-secondary enterprise, and the resulting impacts on campuses and enrollments.

34. ASIMOV, Isaac. "The Fourth Revolution," *Saturday Review,* Oct. 24, 1970, pp. 17-20. (Part of special issue entitled "Toward The Global Village.")

One of America's most prolific writers on science fiction and non-fiction topics, Asimov views the evolution of human communications in terms of four revolutions: speech, writing, the printing press, and electronic communications. We have advanced as far as we can in the world of the third revolution, and "The race is on between the coming of the true fourth revolution and the death of civilization that will otherwise

inevitably occur through growth past the limits of the third" (p.18). Although the first signs of the coming of the fourth revolution were to be noted in the mid-nineteenth century, this revolution is still "limited in scope and powerless to cause anything but fringe effects." Once truly established, however, Asimov envisions a world-wide electronic literacy, person-to-person communication on a scale of massive freedom, the library of mankind available to any man at any time, a personal immediacy that will justify the sense of a global village, lessened differences among men, English as the lingua franca, an "enormous" revolution in education with much learning in the home, uneducated peoples of the world leapfrogging into the culture of the fourth revolution and cities spreading out and disappearing (thus alleviating the overconcentration which many times multiplies the impact of overpopulation).

35. PARKER, Edwin B. and Donald A. DUNN. "Information Technology: Its Social Potential," *Science*, 176: June 30, 1972, pp.1392-1399.

Two Stanford professors propose that "An information utility could be made available to every urban home and rural community in the United States by 1985. Such a national goal would, like the goals of the space program, have the glamor of new technology" (pp.1392-1393).

Such a utility "might be visualized as a communication network providing access to a large number of retrieval systems in which nearly all information, entertainment, news library archives, and educational programs are available at any time to any person wanting them . . . The social goal of such an information utility could be to provide all persons with equal opportunity of access to all available public information about society, government opportunities, products, entertainment, knowledge, and educational services. From the subscriber's perspective such a system would look like a combination of a television set, telephone, and typewriter. It would function as a combined library, newspaper, mail-order catalog, post office, classroom, and theater" (p.1395).

The capital cost per subscriber is likely to be around $500-$700 which is about equal to the capital investment per telephone. The benefits are innumerable: the "greatest single potential" being "the opportunity to reduce the unit cost of education." Other social, political, and educational potentials are discussed, such as reducing the need for transportation, increasing effective political participation, and enabling people to find their own levels of ability without others telling them what they can and cannot do.

Although most of the funds for this proposed utility will come from the private sector, federal action is urged "in the areas of coordination, policy analysis and assessment, and the funding of pilot projects and demonstrations."

A comprehensive information utility promulgated as a national goal provides a distinctly more ambitious alternative to the relatively modest suggestion of the Carnegie Commission for cooperative learning-technology centers that will largely service campuses and concentrate on instructional programs. Needless to say, the choice of a national goal such as that proposed by Parker and Dunn would greatly enhance space/time/credit-preference higher learning and would invalidate some of the Carnegie Commission's forecasts and proposals.

36. SACKMAN, Harold. *Mass Information Utilities and Social Excellence.* Princeton, N.J.: Auerbach Publishers, 1971. 284 pp. $13.50.

Describes possible information utilities of the future and how lack of present action may foreclose possibilities for enhancing democratic participation and lifelong learning for all.

37. GOLDMARK, Peter C. "Tomorrow We Will Communicate to Our Jobs," *The Futurist*, VI:2, April 1972, pp.55-58.

Outlines a variety of new communication networks that could lead to a new rural community.

38. DOYLE, Frank J. and Daniel Z. GOODWILL. *An Exploration of the Future in Educational Technology.* Montreal: Bell Canada (c/o F. J. Doyle, Business Planning, Room 1105, 620 Belmont St.), Jan. 1971. 70 pp. Free.

A Delphi study utilizing 31 Canadian and 7 American panelists, and agreeing on the following major trends: a period of steady change in education over the next 25 years, extensive development and widespread adaptation of educational technology during the late seventies and eighties, and a change in societal values toward "a society more open to innovation, more insistent upon involvement and participation, and more oriented to the individual." Specific areas examined include computerized library systems and data banks, the adoption of CAI and A-V retrieval systems, the generic types of communications sytems, the future role of the teacher, and education in the home.

The pervasive optimism of this report might be questioned, however. The adaptation of this technology may at best be uneven (thereby aggravating problems of equal opportunity), and the consequences may not all be positive (a consideration ignored by the panel).

39. CHERRY, Colin. *World Communication: Threat or Promise? A Socio-Technical Approach.* N.Y.: Wiley-Interscience, 1971. 230 pp. $9.50.

40. *Wiring the World: The Explosion in Communications.* Washington: U.S. News and World Report Books, 1972. 208 pp. $2.95 paper.

Popular overview of cable, satellites, pay TV, videocassettes, and picturephones.

41. ROSSI, Peter H. and Bruce J. BIDDLE (eds.). *The New Media and Education: Their Impact on Society.* Chicago: Aldine, 1966; Garden City, N.Y.: Doubleday Anchor, 1967. 460 pp.

11 articles by sociologists on recent and projected technological developments, and the impact of the new media on school systems, higher education, adult education, and the total society.

42. BAGDIKIAN, Ben H. *The Information Machines: Their Impact on Men and the Media.* N.Y.: Harper & Row, Feb. 1971. 359 pp. $8.95.

The Assistant Managing Editor of *The Washington Post*, after two years at RAND, offers a broad overview on the collecting and daily delivery of information, largely through newspapers, television, and radio, and how our lives may be changed by the way we get our news in the future. The long-range significance of a primary new medium, cable television, is seen as its potential for outward communication. Concludes with the results of a 44-item Delphi exercise.

43. GORDON, Donald R. *The New Literacy.* Toronto: University of Toronto Press, 1971(?). $10.00; $2.75 paper.

Contends that the three Rs are being replaced by a new literacy involving all means of communications.

44. GATTEGNO, Caleb. *Towards a Visual Culture: Educating Through Television.* N.Y.: Outerbridge & Dienstfrey, 1969. 117 pp. $4.95.

A serious essay of McLuhanesque proportions on the potentials of television in education: "a call to use television for what it can give, which is really tremendous and by most still unsuspected" (p.4). ". . . only recently, through television, has (man) been able to shift from the clumsiness of speech . . . to the power of the dynamic, infinite visual expression . . . we can foresee the coming of an era where . . . we shall be able to share vast conscious experiences at once . . . The future is requiring that we learn to consider ever larger wholes in whatever social position we find ourselves . . . a visual culture is the answer to such a trend . . . sight is a far swifter means of experiencing and communicating than speech" (p.5).

45. YOUNGBLOOD, Gene. *Expanded Cinema.* Introduction by R. Buckminster Fuller. N.Y.: Dutton, 1970. 432 pp. $4.95 paper.

An imaginative exploration of new media, addressing topics such as synaesthetic cinema, cosmic consciousness, cybernetic cinema, computer films, holography, and the post-mass audience age. In the introduction, Fuller concludes that

"Tomorrow's Expanded Cinema University, as the word universe--towards one--implies, will weld metaphysically together the world community of man by the flux of understanding and the spontaneously truthful integrity of the child" (p.35).

46. BLAKELY, Robert J. *The People's Instrument: A Philosophy of Programming for Public Television*. Washington: Public Affairs Press, 1971. 179 pp. $7.00.

Explores future alternatives to attain the four essential purposes of public television: broadcasting for general audiences, for children, for formal instruction, and for continuing education.

47. MARTIN, James. *Future Developments in Telecommunications*. Englewood Cliffs, N.J.: Prentice-Hall, 1971. xiv, 414 pp., illus. $14.00.

48. Sloan Commission on Cable Communications. *On the Cable: The Television of Abundance*. Report of the Commission. N.Y.: McGraw-Hill, 1971. 256 pp. $2.95 paper.

A cautious and comprehensive overview of the prospects of cable through 1980. The impact on formal education is not considered, but recognizing the "enormous" potential, a major study is urged.

49. *Yale Review of Law and Social Action*, 2:3, Spring 1972.

12 articles on CATV, in response to *On the Cable*. "This report stands to become an authoritative source on cable policy, yet it seems to ignore major alternatives for cable TV. To our mind, *On the Cable* requires a reply . . . a counter source of views on the potential benefits and harms" (The Editors). Articles cover "The Cable Fable," pay CATV, the fight for access, educational uses, ownership policy, community control, privacy, and a Dayton, Ohio survey of what the public thinks about television and its potential new uses.

50. MOLENDA, Michael H. "The Educational Implications of Cable Television (CATV) and Video Cassettes: An Annotated Bibliography," *Audiovisual Instruction*, April 1972, pp.42-59.

More than 150 well-annotated items arranged in four categories: Status and Future of CATV, Regulation of CATV, CATV and Education, and CATV and Socio-Cultural Concerns. A good selection of popular, academic, and counter-culture views.

51. ALPERT, Hollis. "The Cassette Man Cometh;" Ivan BERGER, "Someday Morning for the Culture Cans," *Saturday Review*, Jan. 30, 1971, pp.42-47.

Articles on the impending Cassette TV revolution,

with the Berger article providing a chart of 11 competing systems, their expected dates of introduction in 1971 and 1972, and their technical attributes. Many other articles and books on cassettes will surely be published in the near future.

This new technology may prove to have a far greater impact on education than broadcast television, once the bewildered consumer makes a choice between Cartrivision, Videocassette, EVR, SelectaVision, Instavision, Videodisc, and other systems--all largely incompatible with each other. Ultimately we might see a national or global electronic university offering thousands of cassette courses that would make even the offerings of the multiversity appear meager.

52. MICKELSON, Sig. "The First Eight Years," *Saturday Review*, Oct. 24, 1970, pp.21-23. (Part of special issue entitled "Toward The Global Village.")

An overview of developments in communications satellites, and the growing linkages between the developed and the developing world. While circuit capacity has vastly increased, cost continues to be lowered so that by 1975, it may be 25% of the 1968 figure. Direct-to-home communications through broadcast satellites may be technically feasible by the late 1970's.

53. The Twentieth Century Fund Task Force. *The Future of Satellite Communications*. N.Y.: Twentieth Century Fund (41 East 70th Street), 1970. $1.00.

"A committee of distinguished authorities . . . explodes the myth of communications satellite resource scarcity . . . finds unjustified the fear of propaganda and cultural imperialism . . . recommends new and simplified controls over satellite communications" (advt.).

54. FELDMAN, Nathaniel E. and Charles M. KELLY (eds.). *Communication Satellites for the 70's: Technology*. A conference, Los Angeles, April 1970. Cambridge, Mass.: M.I.T. Press, 1971. xxii, 618 pp., illus. $18.50. Progress in Astronautics and Aeronautics, Vol. 25.

55. FELDMAN, Nathaniel E. and Charles M. KELLY (eds.). *Communication Satellites for the 70's: Systems*. Cambridge, Mass.: M.I.T. Press, 1971. xxii, 658 pp., illus. $18.50. A conference, Los Angeles, April 1970. Progress in Astronautics and Aeronautics, Vol. 26.

56. ALPERT, Daniel and Donald L. BITZER. "The World After PLATO IV: The Implications of Computer-Based Systems on Education of the Future," in House Committee on Education and Labor, *Alternative Futures in American Education* (see No. 70), pp.170-177.

The authors are responsible for a decade of research and development on the PLATO program at the University of

Illinois, and their assertions are obviously flavored by partiality. But their estimates are so dramatic as to demand at least a hearing.

The first PLATO IV system will be demonstrated during this decade, reaching a full complement of 4000 student consoles. The authors feel that the system will provide superior instruction at lower cost, providing more options for a greater diversity of students. They therefore are prompted to suggest the educational supplementation that might be achieved on a national level with only a $3 billion annual expenditure:

--Elementary and secondary education: 5 million student consoles at $1.5 billion per year, providing one-half hour of individual instruction per day for each of 50 million pupils.

--Higher Education: 500,000 student consoles at a cost of $600 million per year, doubling the total amount of currently available instruction at the community college level, and increasing by 35% the amount of undergraduate instruction at universities and four-year colleges.

--Continuing Adult Education: 100 student-contact hours of instruction annually for each of 15 million adults at a cost of $0.5 billion.

The $3 billion annual cost for increased capacity in all three categories is contrasted to a cost exceeding 10 times that figure if conventional means of instruction were used.

57. BJERRUM, Chresten A. "Forecast of Computer Developments and Applications 1968-2000," *Futures*, 1:4, June 1969, pp.331-338.

Results of a Delphi study, with the general consensus that "rapid development of advanced computers and computer applications is expected to continue to the year 2000 and result in much more influence on society than today" (p.335). Some of the forecasts: a 50% reduction of the labor force in present industry by the late 1980's, all major industries controlled by computers in the year 2000, patients in major hospitals controlled by computers around 1975, computer prices (despite advanced technology) to decrease by a factor of 100 by the end of the 1980's.

58. BEMER, R. W. (ed.). *Computers and Crisis*. A conference, New York, 1970. N.Y.: Association for Computing Machinery, 1971. x, 413 pp. $7.50 paper; $15.00 cloth.

How computers are shaping our future.

59. GREENBERGER, Martin (ed.). *Computers, Communications, and the Public Interest*. Baltimore: Johns Hopkins, 1971. 315 pp. $12.50.

Derived from a 1969-70 series of lectures sponsored by Johns Hopkins and the Brookings Institution. Especially see

"Designing Organizations for an Information-Rich World" by Herbert A. Simon.

60. GRUENBERGER, Fred (ed.). *Expanding Use of Computers in the '70's.* Englewood Cliffs, N.J.: Prentice-Hall, 1971. viii, 120 pp. $6.95.

Markets, needs, technology. Proceedings of a symposium, Los Angeles, March 1970.

61. HAWKES, Nigel. *The Computer Revolution.* N.Y.: Dutton, 1972. $7.95.

A book in the "World Science Library" with 150 illustrations.

62. MARTIN, James and Adrian R.D. NORMAN. *The Computerized Society.* Englewood Cliffs, N.J.: Prentice-Hall, 1970. xiv, 560 pp., illus. $10.95. Series in automatic computation.

An appraisal of the impact of computers on society over the next 15 years.

63. PYLYSHYN, Zenon W. (ed. with commentaries). *Perepectives on the Computer Revolution.* Englewood Cliffs, N.J.: Prentice-Hall, 1970. xx, 540 pp., illus. $10.50. Series in automatic computation.

64. TAVISS, Irene (ed.). *The Computer Impact.* Englewood Cliffs, N.J.: Prentice-Hall, 1970. xiv, 298 pp. $7.95 cloth; $4.50 paper. Series in automatic computation.

65. BARAN, Paul. *Potential Market Demand for Two-Way Information Service to the Home, 1970-1990.* Middletown, Conn.: Institute for the Future, Report R-26, Dec. 1971.

Describes potential market demand and service parameter estimates for 30 potential information services to the home.

66. BARAN, Paul and Andrew J. LIPINSKI. *The Future of the Telephone Industry: 1970-1985.* Middletown, Conn.: Institute for the Future (Riverview Center), 1971.

Sponsored by AT&T, the report summarizes the findings of panels on the future of regulation, social change, existing networks and services, new networks and services, and labor-management relations.

67. PLATT, John R. *The Step to Man.* N.Y.: Wiley, 1966. 216 pp.

Thoughtful essays by a biophysicist on the evolving nature of man. See especially Chapter 1, "Where Will the Books Go?" in which microlibraries are forecasted as "a familiar system within everyone's reach . . . a memory and the beginnings of a universal brain for the whole human race."

68. TEBBEL, John. "Libraries in Miniature: A New Era Begins," *Saturday Review*, Jan. 9, 1971, pp.41-42.

A brief overview discussing the Microbook Library of Encyclopaedia Brittannica, the PCMI Library Information System of the National Cash Register Co. (utilizing UMF, or Ultramicrofiche), *The New York Times'* Information Bank, a new index from University Microfilms, and possible applications of cassette video players to books. "We are approaching a new era that will certainly revolutionize libraries, probably reading habits, and possibly even publishing itself . . . What the transistor is to radio and television, high reduction photography is to the printed page."

69. MEISE, Norman R. *Conceptual Design of an Automated National Library System.* Metuchen, N.J.: Scarecrow Press, 1969. 234 pp.

Demonstrates the feasibility of an automated system that utilizes existing technology. Also discusses bibliographic search, acquisitions, circulation data, cataloging, and tying together local libraries (public, academic, and special), regional centers, and a National Library Central (perhaps the Library of Congress, which is already moving toward automation). Although this volume is largely technical, it is nevertheless important for suggesting what would more or less appear to be the inevitable shape of future information systems.

C. PROBLEMS AND PROSPECTS IN POST-SECONDARY EDUCATION

70. U.S. Congress. House Committee on Education and Labor. *Alternative Futures in American Education.* Appendix 3 to Hearings on H.R. 3606 and Related Bills to Create a National Institute of Education. Washington: USGPO, Jan. 1972. Committee Print, 446 pp.

May be difficult to acquire, but the effort will be worth it, for this provocative collection is far superior to volumes prepared by most educators and particularly relevant to considering S/T-P Higher Learning. Among the 22 articles and appended bibliography (see item No.120), the following are particularly noteworthy:

--Willis W. Harman, "The Nature of Our Changing Society: Implications for Schools" (see annotation No. 20)

--Alvin Toffler, "Education and Emerging Superindustrialism" (see annotation No. 3)

--Joseph F. Coates, "The World's Future Problems and Alternative Solutions." (A critique of present futurist thinking--especially the lack of attention to secondary consequences--and a call for a firmer intellectual effort to cope with our interrelated problems in a total and

systematic manner.)

--Daniel Alpert and Donald L. Bitzer, "The World After PLATO IV: The Implications of Computer-Based Systems" (see annotation No. 56).

--Theodor H. Nelson, "Computopia and Cybercrud." (Astute observations by an expert who is well aware of Cybercrud--"putting things over on people using computers"--with attention paid to creative uses such as prestidigitative publishing, stretchtext, and "Xanadu--the ideal console.")

--Nelson N. Foote, "The New Media and Our Total Society." (Describes the attributes of electronic learning, the global audience, and the new problems of selectivity created by the new abundance of knowledge.)

--Ralph M. Goldman, "Lifespan Educational Insurance." (Covers problems of obsolescence and aging, and proposes a Senior Citizen Scholarship System to be facilitated by relaxing Social Security retirement rules.)

--Robert J. Solomon and John R. Valley, "Credit by Examination and the External Degree."

--Laurence B. DeWitt, "A Lottery System for Higher Education."

--Frederick J. McDonald, "Teaching in the Knowledge Society." (Comments on Drucker's concept of the "knowledge society," and proposes "heuristic teaching"--in contrast to traditional didactic teaching--as necessary for the inquiry skills required by the knowledge-economy.)

/1. VAUGHAN, Ted R. and Gideon SJOBERG. "The Politics of Projection: A Critique of Cartter's Analysis," *Science*, 177: July 14, 1972, pp.142-147.

This important article parallels the criticisms that are made in this report of the Carnegie Commission enrollment projections--essentially arguing that fundamental social changes are being ignored.

The Cartter analysis of the need for Ph.D.'s has been very influential in shaping American graduate education in recent years, but the authors argue that "it represents a highly unreliable point of departure for policy-making in graduate education" in that it is assumed by Cartter that structural conditions within the society will continue essentially unchanged over the next two decades, the age composition of undergraduate student bodies will remain relatively constant, and the economic order will remain essentially the same. The authors argue that the service sector of society is expanding, there is a changing relation of work and leisure, and there are new ways of going to college.

". . . we contend that a variety of data indicate that it is Cartter's own projections, and their likely consequences, that pose the most significant problem for higher education in America" (p.143).

". . . the failure by educators to take a more active role in defining the future social order could, for instance, make a transition from a war-oriented to a peace-oriented economy more, rather than less, difficult . . . There exists a range of possibilities, and it is politically feasible for educators to play a role in creating a more viable and meaningful way of life" (p.146).

72. COOMBS, Philip H. *The World Educational Crisis: A Systems Analysis.* N.Y.: Oxford, 1968. 241 pp. Bib., pp.217-226.

A competent overview of international educational trends, indicating that problems of rising demand and system obsolescence are afflicting all nations in every part of the world. Although the discussion is organized around inputs and outputs, it is nevertheless highly readable, covering not only the formal system but nonformal or "periphery" education.

73. BROSAN, George, Charles CARTER, Richard LAYARD, Peter VENABLES, and Gareth WILLIAMS. *Patterns and Policies in Higher Education.* Harmondsworth, Middlesex, England: Penguin Books, 1971. 186 pp.

The thinking in this volume could well be termed as the British parallel to the work of the Carnegie Commission. The authors consider enrollment projections and alternative lines for the expansion of the space-bound system. The Open University is mentioned (pp.139-144) as an adult education enterprise, and therefore not considered as an alternative for college-age students.

74. Commission on Post-Secondary Education in Ontario. *Draft Report.* Toronto: Ontario Government Bookstore (880 Bay St.), Spring 1972. 112 pp. Free.

Among the many recommendations of the "Wright Commission," in this discussion draft to precede the final report, is the creation of a "University of Ontario" which would provide educational services via television and correspondence, a testing and evaluation service available on demand, award degrees without formal course requirements, and cooperate with other institutions in the broader provision of educational services (pp.24-25).

75. Commission on Tests. *Report of the Commission on Tests. I. Righting the Balance* (118 pp., $2.00). *II. Briefs* (194 pp., $3.00). N.Y.: College Entrance Examination Board, 1970. $4.50 for both volumes in boxed set.

Recommends that the College Board modify and improve its tests and associated services in seeking to serve its distributive, credentialing, and educative functions. It is suggested that the Board act for both its traditional institutional clientele and for its student clientele, and

that the "other half" of non-college-going high school students be served through a job entry testing program and regional centers for guidance in continuing education. Thus, the theme of "Righting the Balance" in the first volume. The second volume consists of 14 papers by Commission members, serving as background to the many recommendations made.

76. U.S. Department of Health, Education, and Welfare. *Report on Higher Education*. Washington: USGPO, March 1971. 140 pp. (Major proposals reprinted in *The Chronicle of Higher Education*, March 15, 1971, pp.4-8.)

The well-known "Newman Report" challenges a number of assumptions upon which traditional higher education is based. Especially relevant to S/T-P learning is the section on "New Resources for Off-Campus Education" (pp.68-71) which advocates regional examining universities, regional television colleges, and informal colleges or learning clinics.

The task force head, Frank Newman, has recently authored "A Preview of the Second Newman Report" (*Change*, May 1972, pp.28-34) that outlines several of the proposals being developed for federal action, including regional examining universities and a small number of video production centers that will develop entire educational delivery systems. The second report will be available in Fall 1972.

77. The President's Committee on Education Beyond the High School. *Second Report to the President*. Washington: USGPO, July 1957. 114 pp.

Originally intended as an interim report similar to the first one (Nov. 1956), funds were cut off and this report serves as the final statement. There are a number of recommendations concerning inputs: the need for teachers, assistance to students, expansion and diversity of educational opportunities, and financing higher education; but there is no concern for the quality of educational services as there is at present. However, there are two remarkable insights that are still relevant for contemporary policy-making: the recognition of peripheral education in corporations, the military, etc., such that "we have become a 'society of students'" (p.1), and the emphasis on the neglected federal role in collecting information. "We have been struck above all else by the astounding lack of accurate, consistent, and up-to-date facts, and by how little this Nation knows about its enormously vital and expensive educational enterprise in contrast to how much it knows, in great detail, about agriculture, industry, labor, banking and other areas" (p.15).

78. U.S. President's Commission on Higher Education (George F. Zook, Chairman). *Higher Education for American Democracy*. Washington: USGPO, 1947.

Vol. 1. *Establishing the Goals* (103 pp.). Advocates education for a better nation, equal opportunity,

general education, and education adjusted to needs.

Vol. 2. *Equalizing and Expanding Individual Opportunity* (69 pp.). Discusses the economic barrier, racial and religious discrimination. Recommends the assumption of greater responsibility for adult education and a national program of scholarships and fellowships.

Vol. 3. *Organizing Higher Education* (74 pp.). Covers facilities, state and national organizations, and voluntary agencies.

Vol. 4. *Staffing Higher Education* (63 pp.). Reviews preservice and inservice education and improving working conditions.

Vol. 5. *Financing Higher Education* (49 pp.). Focuses on the role of the federal government.

Vol. 6. *Resource Data* (51 pp.). Tables.

One might appropriately ask how the recommendations of the Carnegie Commission differ significantly from this effort of 25 years ago.

79. U.S. Congress. House Committee on Science and Astronautics. *The Management of Information and Knowledge*. Washington: USGPO, 1970. 130 pp. 60¢.

Seven provocative papers prepared for the Eleventh Meeting of the Panel on Science and Technology by Herman Kahn, Stafford Beer, Daniel J. Boorstin, Thomas F. Green, Paul Armer, Osmo A. Wiio, and George Kozmetsky. Especially see "Education and Schooling in Post-Industrial America: Some Directions for Policy" by Green.

80. GREEN, Thomas F. (ed.). *Educational Planning in Perspective*. Guildford, Surrey, England: FUTURES/IPC Science and Technology Press, Fall 1971. 132 pp. £2.25 or $5.00.

Especially see the following: "The Shifting Context for Educational Planning" and "The Dismal Future of Equal Educational Opportunity" (both by Thomas F. Green, Co-Director of the Syracuse EPRC), "Sketching a Scenario for British Post-Secondary Education in the 1980's" by Peter Armitage and Gareth Williams, "The Discovery and Decline of the Ignorant Society, 1965-1985" by Michael Marien (available separately from the Syracuse EPRC), and "The Knowledge Base in Education: A Basis for Long-Term Policy Planning?" by Beresford Hayward.

81. GREEN, Thomas F. "Post-Secondary Education: 1970-1990," in *Dilemmas in American Policy: Crucial Issues of Contemporary Society*. Syracuse: Syracuse University Publications in Continuing Education, No. 62, Nov. 1969, pp.59-84.

A discussion of the post-secondary system including the entire range of on-the-job training, adult education, museums, art centers, and technical institutes as well as colleges and

universities. In contrast to today's closed system of rigorous credentialism, "extended professionalism," and specialization, a scenario is offered (centered around a university president in 1988) of a new system unbound by sterile qualifications for students or staff, and unrestricted in its offerings by status or place.

82. HUSÉN, Torsten. *Present Trends and Future Developments in Education: A European Perspective*. The Peter Sandiford Memorial Lectures. Toronto: The Ontario Institute for Studies in Education, Occasional Papers No. 8, 1971. 42 pp.

An astute and succinct overview of educational concerns at all levels, with concluding comments on the "learning society" of the future.

83. MARIEN, Michael. "Beyond Credentialism: The Future of Social Selection," *Social Policy*, Sept./Oct. 1971, pp.14-21. (Reprints available through Syracuse EPRC.)

Discusses the negative consequences of "credentialism" as the major device in contemporary social selection and sketches three scenarios of possible futures: a more rationalized meritocracy, an egalitarian condition deemphasizing credentials, and a "multi-meritocracy" built on the principle of recognizing multiple skills through multiple measures and multiple chances.

84. WHITEHEAD, Alfred North. *The Aims of Education and Other Essays*. N.Y.: The Free Press, 1967 paperback edition (Copyright 1929).

Words of wisdom that are still--indeed, even *more*--relevant than ever:

"In the conditions of modern life the rule is absolute, the race which does not value trained intelligence is doomed" (p.14).

"Education is the acquisition of the art of the utilization of knowledge" (p.4).

"The solution which I am urging, is to eradicate the fatal disconnection of subjects which kills the vitality of our modern curriculum. There is only one subject matter for education, and that is Life in all its manifestations" (p.7).

"The justification for a university is that it preserves the connection between knowledge and the zest for life, by uniting the young and the old in the imaginative consideration of learning. The university imparts information, but it imparts it imaginatively. At least, this is the function which it should perform for society. A university which fails in this respect has no reason for existence" (p.93).

"Knowledge does not keep any better than fish" (p.98).

85. EURICH, Alvin C. *Reforming American Education: The Innovative Approach to Improving Our Schools and Colleges.* N.Y.: Harper & Row, 1969. 269 pp. $6.50.

"Education must be vastly improved to meet the challenges of the present and the future; the innovative approach is the most promising strategy for bringing about such improvement" (p.xiii). Taking a wide-angle view, the author discusses rigid dogmas, the necessity for bold public policies, provocative new developments, new patterns of reform at all levels, and education as a futurist enterprise.

An updated scenario, "A 21st Century View of American Higher Education" (pp.175-199), touches on university cities, sea-grant colleges on floating ocean cities, the revival of philosophy and the humanities to deal with spiritual malaise, learning terminals with graphic tablets and multi-purpose TV type displays, computerized learning, internationalization, individualization, etc.

86. HUTCHINS, Robert. *The Learning Society.* N.Y.: Praeger, 1968. 142 pp.; Mentor Books, 1969. 166 pp. $1.25.

Argues for making liberal education universal, in that "the more technological the society is, the more rapidly it will change and the less valuable ad hoc education will become." Predicts that "In the closing decades of the twentieth century, education seems destined to become the principal preoccupation of all states."

87. TAYLOR, Harold. *The World as Teacher.* N.Y.: Doubleday, 1969. 322 pp. $6.95.

The result of a two-year study of the education of American teachers in world affairs. Proposes a wide array of reforms to make education more relevant to the emerging world society.

88. ZWEIG, Michael. *The Idea of a World University.* Edited with a foreword by Harold Taylor. Carbondale: Southern Illinois University Press, 1967. 204 pp.

A thorough exploration of a recurring idea for an institution "which would match on an intellectual scale what the United Nations was designed to accomplish in a political dimension . . . a rough estimate would be that since the end of World War I, more than one thousand such proposals have been made" (Taylor in Foreword, pp.v-vi). Zweig explores the needs, alternatives (international exchanges, area study programs, etc.), the history of the proposal, and what needs to be done.

A recent report on the status of a proposed United Nations university (now planned only as an interrelated set of research centers around the world) is provided by Harold Taylor in *Change*, May 1972, pp.66-68, and by its proposer, U Thant, World, August 1, 1972 and August 29, 1972.

89. ROGERS, Carl R. *Freedom to Learn: A View of What Education Might Become.* Columbus, Ohio: Charles E. Merrill Publishing Co., 1969. 358 pp.

An eminent psychologist feels that "all teachers and educators prefer to facilitate experiential and meaningful learning, rather than the nonsense syllable type. Yet in the vast majority of our schools, at all educational levels, we are locked into a traditional and conventional approach which makes significant learning improbable if not impossible . . . It is not because of any inner depravity that educators follow such a self-defeating system. It is quite literally because they do not know any feasible alternative" (p.5). Alternatives are suggested toward building "a fully functioning person" and a plan for self-directed change in an educating system is proposed.

90. ILLICH, Ivan. *De-Schooling Society.* N.Y.: Harper & Row, World Perspectives Series, 1971.

A well-known volume that points to the schooling system as the root of industrial era problems and offers a radical alternative for enhancing learning and providing equal opportunity. For subsequent overviews, see Ivan Illich, "The Alternative to Schooling" (*Saturday Review*, June 19, 1971) and "After De-Schooling, What?" (*Social Policy*, Sept./Oct. 1971). Also see writings by Everett Reimer.

91. REIMER, Everett. *School is Dead: An Essay on Alternatives in Education.* N.Y.: Doubleday, 1971; Middlesex, England: Penguin, 1971.

Expanded version of essay annotated below.

92. REIMER, Everett. *An Essay on Alternatives in Education.* Cuernavaca, Mexico: Centro Intercultural de Documentacion (Apdo. 479), CIDOC Cuaderno No. 1005, 1970. 93 pp. Also published in *Interchange*, 2:1, 1971, along with six responding articles.

Reimer is a colleague of Ivan Illich who thinks along similar lines. It is not clear (and probably not important) as to who has originated what idea, for, as explained in the introduction to this essay, Reimer and Illich have been conversing for almost 15 years since meeting in Puerto Rico. Paolo Freire, Paul Goodman, and others have also contributed to this body of thought.

In this comprehensive essay, Reimer views school as "the universal church of the technological society" and sees the formation of a universal international curriculum. Yet, "The conclusion is inescapable: no country in the world can afford the education its people demand in the form of schools." Even in the U.S., where the richest one-tenth of the population gets ten times as much public funds for education as the poorest one-tenth, it is estimated that an additional $80

billion would be required to fully meet educational demands. Given the growing importance of schooling benefits, it is inevitable that the rich outdistance the poor both within and between nations, unless they grow in charity faster than they grow in privilege. "Since there is no precedent for such behavior, it seems wiser to turn to the other alternative, namely, not to separate education from activities which provide for more basic needs." It is also considered essential that learning resources be allocated outside the school system (as the only means of attaining equity), and that control of these resources should be in the hands of persons seeking to learn.

Schools will not be abandoned, but are seen as only one way of organizing the resources required for learning (time, space, objects, and people). A system of lifetime educational accounts is advocated (not unlike the voucher system), in addition to four laws that would effectively disestablish the school system as an educational monopoly: a law separating school and state (similar to the first amendment of the U.S. Constitution), a law forbidding favoritism based on schooling ("Where and how one has been schooled is as irrelevant to one's capacity to do a job as race or religion"), a law requiring equal sharing of public educational resources, and an effective extension of anti-monopoly laws to the field of education.

93. ROSENSTEIN, Allen B. *A Study of a Profession and Professional Education.* The Final Publication and Recommendations of the UCLA Educational Development Program. Los Angeles: University of California, School of Engineering and Applied Science, Reports Group, EDP 7-68, Dec. 1968. Approximately 200 pp.

The culmination of a 12-year study originally addressed to the problems of engineering education, but necessarily addressed to the larger question of curriculum design for all modern professions.

94. MOSES, Stanley. *The Learning Force: A More Comprehensive Framework for Educational Policy.* Syracuse: Syracuse University Publications in Continuing Education, Occasional Papers No. 25, Oct. 1971. 36 pp. (Available from Syracuse EPRC.)

The "Learning Force" concept includes all students in "Core" institutions (elementary, secondary, and higher education), as well as those in the "Periphery" (corporation and military training programs, proprietary schools, anti-poverty programs, correspondence schools, and other adult education programs. Moses supplies trend data (1940-1975) indicating that enrollments in the Periphery (assessed on a head count rather than an FTE basis) are growing at a rapid rate relative to those of the Core.

Although not directly concerned with S/T-P learning, this paper is nevertheless important because it seeks to identify

learning activity that has heretofore not been recognized in our educational data. Much of the learning in the periphery could be credited through external degree programs.

95. TOUGH, Allen. *The Adult's Learning Projects: A Fresh Approach to Theory and Practice in Adult Learning*. Toronto: Ontario Institute for Studies in Education, Fall 1971. 191 pp. $4.00 paper.

The latest and most sophisticated of a series of studies conducted by Tough and his associates on self-initiated learning behavior. A "learning project" is a series of "learning episodes" totalling more than 7 hours, an episode being defined as an effort "in which more than one half of a person's motivation is to gain and retain certain knowledge and skill that is fairly clear and definite."

Among 66 adults, the in-depth interviews discovered that 65 had conducted at least one learning project in the past year, with an average of 8 distinct projects totalling 700 hours a year of learning effort. Less than 1% of these projects were motivated by academic credit, and about 70% of the projects were planned by the learner himself. Ten 16-year olds and ten 10-year olds were also interviewed, with a parallel discovery of significant non-school learning activity.

96. ZIEGLER, Warren L. *Essays on the Future of Continuing Education World-wide*. Syracuse: Syracuse University Publications in Continuing Education, 66, July 1970. 141 pp. $3.00.

Eight essays; especially see "New Needs, New Contents, New Forms" by Robert J. Blakely.

D. SPACE/TIME-PREFERENCE HIGHER LEARNING

97. BOYER, Ernest L. and George C. KELLER. "The Big Move to Non-Campus Colleges," *Saturday Review*, July 17, 1971, pp.48+.

The authors are associated with the State University of New York and this otherwise excellent overview serves to promote the virtues of Empire State College through the use of a four-category taxonomy.

98. MARIEN, Michael. "Higher Learning in the Ignorant Society," *The Futurist*, VI:2, April 1972, pp.49-54.

A somewhat shortened version of this report, based on the premise that we live in an increasingly ignorant society where learning needs are outdistancing attainments. To adapt to these needs, three "paths to new educational institutions"

are outlined: extensions of present institutions, creation of new institutions, and legitimation of other kinds of learning.

99. *Notes on the Future of Education.* Special Issue on "Time, Space, and Education." Vol. III, No. 1. Syracuse: EPRC, Winter 1972. 19 pp. $1.00.

Brief essays on "Time as an Educational Variable" by Thomas F. Green, "Space-Free/Time-Free Higher Learning: New Programs, New Institutions, and New Questions" by Michael Marien, and "Time and Space as Educational Variables: What Difference Can They Make?" by Ralph Hambrick and Susan Baillie.

100. ROJAS, Billy. "Educational Delphi Forecasting." February 1972. 29 pp. Mimeo. (Available from author, c/o Alice Lloyd College, Pippa Passes, Ky. 41844.)

This unpublished Delphi study was conducted among 36 futurists (teachers of college futures courses and non-teaching experts). Respondents were asked for their estimates as to when each of 60 events might occur. Of this number, three possible events are of particular importance to the future of S/T-P higher learning:

--"Undergraduates at 50% of U.S. schools will typically spend 25% or more of their BA work engaged in independent studies" (interquartile range: 1975-1981, 1980 median response).
--"Procedures are developed that permit large numbers of people to take university courses for credit at home, through TV programs; in 15 states" (interquartile range: 1974-1980, 1980 median response).
--"A global electronic university is established. Terminal facilities (CRT devices, xerox, rapid printers, holographic systems) installed at 100 institutions around the world" (interquartile range: 1983-1991, 1988 median response).

101. BAILEY, Stephen K. "Education and the Pursuit of Happiness." The Sir John Adams Lecture delivered at the Graduate School of Education, UCLA, April 28, 1971. *UCLA Educator,* 14:1, Fall 1971, pp. 11-23.

After many thoughts on our social condition, Bailey notes that "beginnings are being made all over the nation to make education more option-filled, more individualized, more humanistic. Suddenly the walls fall down, and the entire city and the entire countryside become educative instruments. High school work-study programs are beginning to make us question the whole notion of 'compulsory attendance' as traditionally conceived . . . Similarly, at the college level, open universities, universities without walls, are beginning to offer young and old new options for when, where and by whom they will undertake the whole of parts of their higher and continuing education" (p.22). Bailey is Director of the Policy Institute of the Syracuse University Research Corporation (not to be confused with EPRC--a separate division of

SURC) and initiator of the External Degree program, a consortium of institutions in the five-county area centering on Syracuse, N.Y. that will pool their resources in preparing students for the New York State External Degree.

102. Carnegie Commission on Higher Education. *The Expanding Universe of Higher Education: Action Outside the Campus.* A Report and Recommendations. N.Y.: McGraw-Hill, Fall 1972.

103. Commission on Non-Traditional Study. *New Dimensions for the Learner: A First Look at the Prospects for Non-Traditional Study.* N.Y.: Commission on Non-Traditional Study (888 Seventh Ave., NYC 10019), Sept. 1971. 15 pp. Free.

This brief booklet introduces the reader to the members of the Commission and the preliminary findings that there is little knowledge of non-traditional study, non-traditional study will continue to develop whether or not it is carefully planned, there is a general lack of communication and consequent duplication of effort, and there are many difficulties in definition. The booklet will become obsolete toward the end of 1972 as book-length volumes are produced by the Commission and as additional overview documents are produced (see below).

104. GOULD, Samuel B. and K. Patricia CROSS (eds.). *Explorations in Non-Traditional Study.* San Francisco: Jossey-Bass, 1972. 137 pp. $6.75.

The five essays in this volume comprise the first of several publications that will arise from the Commission on Non-Traditional Study. In the Prologue, Samuel B. Gould, the Commission Chairman, cautiously examines "The Prospects for Non-Traditional Study" and concludes that "it will continue to develop and grow in this country whether or not it is carefully planned with appropriate evaluations and safeguards. Many Americans want it, they will search for where they can find it, and they will apply great pressure to bring it into being where it does not exist" (p.10). It is also noted that "a great body of mythology or folklore is emerging about non-traditional study . . . sometimes making this new form of education the answer to all of education's problems but just as frequently making it the object of suspicion or even condemnation. This condition will continue until experience and research substitute knowledge supported by data for wishful thinking influenced by prejudice" (p.11).

Subsequent chapters include "Non-Traditional Study: An Overview" by Rodney T. Hartnett, "Problems of Access" by K. Patricia Cross and J. Quentin Jones, "Problems of Recognition" by Ernest W. Kimmel, and "External Degree Programs" by John R. Valley (which develops a six-fold taxonomy of the administrative-facilitation model, the modes of learning model, the examination model, the validation model, the credits model, and the complex systems model). Additional references appear at the end of each chapter, totalling 80 for the volume.

105. HOULE, Cyril and John SUMMERSKILL. *The External Degree.* San Francisco: Jossey-Bass, Fall 1972.

Prepared for the Commission on Non-Traditional Study.

106. GOULD, Samuel B. *Final Report of the Commission on Non-Traditional Study.* San Francisco: Jossey-Bass, Spring 1973.

107. *The Expanded Campus: Current Issues in Higher Education.* San Francisco: Jossey-Bass, Fall 1972. About $8.00.

A collection of the major addresses presented at the 27th National Conference on Higher Education, sponsored by the American Association for Higher Education in Chicago, March 1972. Some but not all of the addresses deal with S/T-P themes.

108. MOOD, Alexander M. "Another Approach to Higher Education," in *Universal Higher Education: Costs and Benefits.* Background Papers for Participants in the 1971 Annual Meeting. Washington: American Council on Education, 1971, pp.169-186. (To be published in book form in 1972.)

The Director of the Public Policy Research Organization at the University of California at Irvine offers a fresh and well-articulated alternative that is worth serious consideration. A radical restructuring of higher education is proposed, centered around video cassettes and "some kind of institutional structure which I call the Video University." The main features of the rearrangement include most students attending college full-time for only one year, with additional higher education as a part-time activity extending over one's lifetime.

"I am willing to estimate that 99% of video cassettes will be more stimulating than 99% of campus lectures. Students will make this discovery pretty fast, and we may as well prepare ourselves for the consequences" (p.176).

109. *The University Without Walls: A First Report.* Yellow Springs, Ohio: Union for Experimenting Colleges and Universities, Antioch College, Feb. 1972. 48 pp.

About 3000 students are presently enrolled in UWW units under the auspices of 20 colleges and universities. Some 40 institutions have expressed interest in joining the UWW and plans for 5 or 6 UWW Regional Centers are now under way. An international UWW unit is also being planned.

The key ideas around which the UWW is organized are outlined as follows and elaborated on in the Report:

--Inclusion of a broad age range of students
--Involvement of students and staff in the design and development of each UWW unit
--Development of special seminars and other procedures to

prepare students to learn on their own
--Programs individually tailored by student and advisor
--Use of a broad array of learning resources, including local and national Inventories of Learning Resources
--Use of an adjunct faculty as a regular part of UWW's staff
--Opportunities for students to use resources of other UWW units
--Concern for both cognitive and affective learning and development of new assessment procedures

The First Report also discusses research on learning effectiveness, the UWW's particular capacity for aiding minority group students, and various spin-off ideas inspired by the UWW. It is also suggested that UWW can achieve major cost economies and can become self-supporting through the use of tuition alone, due to the use of non-classroom resources and adjunct faculty members from business, government and community agencies. A detailed analysis of costs will be presented as a section of the Preliminary Research Report of the UWW, to be issued in Fall 1972.

110. *The Early Development of The Open University.* Report of the Vice-Chancellor: January 1969-December 1970. Bletchley, Bucks.: The Open University, 1972. 176 pp.

By far the most comprehensive source of information on England's Open University, with chapters devoted to the development of the institution, staffing, developing the campus at Milton Keynes, undergraduate course development, other academic matters, the regional organization, estimating the demand for OU courses, production and distribution of course materials, support systems and records, student services, finance, and external relations. Additional sources of information: *The Open University: Prospectus 1972* (143 pp. general catalog) and *The Open University Study Guide* (139 pp. student handbook).

111. SMITH, Peter J. "Britain's Open University: Everyman's Classroom," *Saturday Review*, April 29, 1972, pp.40-50.

Perhaps the best popular overview of OU to date, concluding that "on the scale in which it is operated in Britain, it will produce a graduate at about 20 percent of the cost of a conventional university graduate."

112. TROUTT, Roy. *Special Degree Programs for Adults: Exploring Non-traditional Degree Programs in Higher Education.* Iowa City, Iowa: American College Testing Program, 1971. 69 pp. $2.00. (Order from ACT Publications, P.O. Box 168, Iowa City, Iowa 52240.)

A non-critical overview dealing with the need for special degree programs, development of such programs, the University of Oklahoma's two major programs, and "prospects for future development" (which proves to be merely an optimistic view

of the present). The appendices include current reading lists for the Oklahoma Bachelor of Liberal Studies Program, and a list of 42 institutions offering external and special degrees in addition to 20 institutions participating in the University-Without-Walls consortium. The author is dean of the College of Liberal Studies at Oklahoma.

113. THOMSON, Frances Coombs (ed.). *The New York Times Guide to Continuing Education in America*. Prepared by the College Entrance Examination Board. N.Y.: Quadrangle, 1972. 811 pp. $12.50.

The Preface states that "This is the first book to describe the opportunities available to America's adults at its accredited educational institutions."

"The courses listed are of all kinds: academic and vocational, traditional and new, in the classroom and through the mail, for credit and for fun. They--and the book--are for any grownup who wants to learn something, somewhere, somehow" (p.1).

This extensive compilation on 2100 classroom institutions and 180 correspondence schools, offering a total of more than 50,000 courses for adults, certainly provides the impression of a single volume offering help on 'everything you ever wanted to know about where and what to learn.'

But this promise is only partly true, if viewed from a systemic perspective, and patently false if viewed from a radical perspective. Rather, there is a profound difference in the what, how, and where of learning that can best be demonstrated by comparing this *Guide* with *The Last Whole Earth Catalog* (Portola Institute, 1971, $5.00). The *Catalog* offers "access to tools" that are "relevant to independent education," assuming no lines between life and learning, and the only worthwhile learning as self-determined and credit-free. Whereas the *Catalog* is based on the premise of learning for survival in a chaotic world, the *Guide* has an introductory section authored by Harold Howe II (a former U.S. Commissioner of Education) entitled "Education for Fun and Profit" (pp.3-14). Howe begins his essay by stating that "Many American adults, perplexed by the rapidly changing world around them and more or less dissatisfied with their own situation in it . . ." but continues on the virtues of education and the subsequent listings. The irony is that the subsequent course listings can satisfy specialized learning needs and the cultural necessity for credit and credentials, but few if any of the 50,000 available courses can offer students a meaningful grasp of "the rapidly changing world around them." If one views the world as being in a perilous state, and therefore views learning as necessary for survival (through developing new cultural forms and cognitive styles), then *The New York Times Guide* is not only irrelevant but misleading. The bland view of society in the *Guide* is suggested by the chapter sub-heading "Technological Society Demands Continuing Education" (p.17)

which aptly justifies the *Guide*.

The New York Times Guide reflects the sentiment that would lead to "The Extended Credit System" (2nd scenario in the text); *The Last Whole Earth Catalog* reflects the sentiment that would lead to "The Empty Campus" (6th scenario, 1st variation in text). From a systemic perspective, which I hold, both the *Guide* and *Catalog* are valuable, and both would necessarily contribute to "The Learner-Centered System" (4th scenario in text).

The difference between the *Guide* and the *Catalog* can be designated as the difference between the establishment liberal and the radical or counterculture perspectives. One can also see the difference by contrasting the work of Moses with that of Tough. In proposing the learning force concept, Moses (item 94) adds the learners involved in formally organized non-credited courses to those engaged in degree-credit learning. The *Guide* uncritically embraces the Moses data (p.17) and even distorts it by announcing that "by 1976 an estimated 149 million American adults will be involved in some kind of educational program . . ." (p.17). (This figure also includes children and would be considerably reduced if full-time equivalents were considered.) On the other hand, Tough (item 95) systemically looks at all varieties of learning behavior, formal and informal, but with the distinct bias of promoting the informal or self-directed non-program learning.

This distinction, between the *Guide* and the *Catalog*, between liberal and systemic world views, and between the data assembled by Moses and Tough, will hopefully not be ignored in the debate that will surely continue in forthcoming years.

114. The California State University and Colleges. *The 1000 Mile Campus: Priorities of the '70's.* Proceedings of the 1971 Conference on External Degree Programs. Commission on External Degree Programs, 1801 E. Cotati Ave., Rohnert Park, Calif. 94928, 1972. $2.00.

Articles by Robert H. Finch, Glenn S. Dumke, Ernest L. Boyer, Samuel Baskin, S. I. Hayakawa, Lewis B. Mayhew, Thomas H. McGrath, Frank R. Siroky, John A. Valantine, Melvin Wachs, and others.

115. University of California, President's Task Force on the Extended University. *Degree Programs for the Part-Time Student: A Proposal.* Berkeley: University of California, Nov. 1971. 56 pp.

Various considerations relative to new degree programs for part-time students. Especially see appendices on assessing the market, establishing learning centers, and utilizing new instructional technologies.

116. *Report of The Committee on New Institutions to the Board of Higher Education.* Chicago: State of Illinois, Board of Higher Education (160 N. La Salle St., Rm. 1100), Dec. 1971. 100 pp.

Especially see recommendations 8, 9, 11, and 12 (p.3) and Appendix C (pp.89-98), indicating interest in developing S/T-P options.

117. Connecticut Commission for Higher Education. *External Degrees and College Credit by Examination: Interim Report.* Hartford: Connecticut Commission for Higher Education (P.O. Box 1320), Jan. 1972. 140 pp.

This report is valuable not only for the interim deliberations of the Connecticut Commission, but for its appendices on similar deliberations supported by the neighboring state of Massachusetts: "The Open University: A Preliminary Report," prepared for the Massachusetts Board of Higher Education, Sept. 1971, by Jerrold R. Zacharias (pp.48-109) and "An Open University/External Degree Program for Massachusetts," prepared for the Massachusetts Board of Higher Education, Oct. 1971, by the late James E. Allen, Jr. (pp.110-137).

118. *Report of the President's Committee on the Future University of Massachusetts.* Boston: University of Massachusetts (85 Devonshire St.), Dec. 1971. 127 pp.

Among other concerns discusses diversity in structure, place, and time (pp.56-69), with particular attention paid to a Massachusetts Open University.

119. BREMER, John and Michael von MOSCHZISKER. *The School Without Walls: Philadelphia's Parkway Program.* N.Y.: Holt, Rinehart, and Winston, 1972. $5.95.

Although devoted to learning at the secondary level, the implications for learning at the post-secondary level should be obvious.

E. FURTHER SOURCES OF INFORMATION

120. MARIEN, Michael. *Alternative Futures for Learning: An Annotated Bibliography of Trends, Forecasts, and Proposals.* Syracuse: Educational Policy Research Center, May 1971. 223 pp. $5.00.

An attempt to survey all of the literature that is relevant to educational policy-making, with annotations for most of the 936 items. Little attention is paid to the S/T-P sector, although annotations on the recent literature of educational reform can offer some valuable perspectives as to prevailing discontent. (Many of the annotations in this selected bibliography are taken from *Alternative Futures for Learning.*)

121. MARIEN, Michael. *Essential Reading for the Future of Education: A Selected and Critically Annotated Bibliography.* Syracuse: Educational Policy Research Center, February 1971. 71 pp. $1.50.

A shortened version of the above compendium, with annotations on 200 items. An updated edition will hopefully appear in Fall 1972.

122. STEVENSON, Hugh A. and William B. HAMILTON (eds.). *Canadian Education and the Future: A Select Annotated Bibliography, 1967-1971.* London, Ontario, Canada: University of Western Ontario, Dept. of Information Services, Jan. 1972. 59 pp. $2.00.

An excellent overview of 260 Canadian sources, providing a quick survey of the issues and concerns that parallel American education.

123. IRADES (Instituto Ricerche Applicate Documentazioni e Studi), *Social Forecasting/Documentation 1971/Ideas, Men, Activities.* Rome: IRADES (Via Paisiello 6, 00198 Roma), 1971. 834 pp. $8.00 US.

The most extensive directory available on futures thinking throughout the world, with listings of individuals, organizations, periodicals, courses, meetings, and a bibliography of 3000 items. A 1972 edition is in preparation.

124. VALLEY, John R. *An Inventory of External Degree Programs and Proposals.* Princeton: Educational Testing Service, March 1971. 33 pp. (Also, May 1971 Supplement, 18 pp.)

These two documents together provide a wide assortment of loosely compiled information on 31 programs and 24 proposals and study groups. Much of this information has been brought together in Valley's essay in the Gould and Cross volume (No.104). There are no plans to update this rapidly-obsolescing inventory, and a forthcoming study by Mathieson (who, with the help of Valley, has identified some 60 programs and proposals) may serve as the most up-to-date survey for 1972. (See Appendix I for a preliminary analysis.)

125. WALKUP, Betsy (comp.). *External Study for Post-Secondary Students: A Brief Annotated Bibliography of Recent Publications.* N.Y.: College Entrance Examination Board, Office of External-Study Programs (888 Seventh Ave., NYC 10019), 1972. 26 pp. Mimeo.

A valuable compendium of 150 annotated items, although some are not relevant to external study. Categories include Bibliographies and Reviews, Directories and Inventories, Innovation, Adult and Continuing Education, Correspondence and Home Study, Credit by Examination and Guidance, College Level Examination Program, and External Degree Programs.

126. PAULSTON, Rolland G. *Non-Formal Education: An Annotated International Bibliography of the Non-School Educational Sector.* N.Y.: Praeger, 1972.

Includes a compilation of 62 bibliographies, directories, and related reference works on various aspects of educational programs in the non-formal, or non-school, educational sector.

127. HARVEY, James. *Compendium on Non-Traditional Study.* Washington: American Association for Higher Education (One Dupont Circle), 1972. $2.00. (Prepared by the ERIC Clearinghouse on Higher Education.) About 50 pp.

128. SMITH, Ann Z. (ed.). "Non-Traditional Study," *Education Recaps.* Princeton: Educational Testing Service, Winter 1971-72. 28 pp.

"An annotated summary of some 80 recent items on non-traditional study including: policy directions, off-campus study, work-study, continuing education, high school programs, proprietary schools, equivalency examinations, and instructional systems" (from Walkup).

129. MATHIESON, David E. *Correspondence Study: A Summary Review of the Research and Development Literature.* Syracuse: ERIC Clearinghouse on Adult Education (107 Roney Lane), March 1971. 102 pp.

Correspondence study is an old form of S/T-P learning, and the new interest in S/T-P learning will necessarily search for evidence of efficacy in any form. Mathieson has combined annotations of 170 items along with extensive summary comments concerning historical background, the art and science of helping adults learn ("andragogy," as opposed to "pedagogy"), research on achievement and completion behavior, and trends of the past decade (concerning new media, special degree programs, credit and degrees by examination, and the Open University).

Of particular interest is the conclusion that "the research seems clearly to indicate that correspondence students perform just as well as, and in some cases better than, their classroom counterparts both in regular correspondence study and in supervised correspondence instruction with high school students" (p.56).

Also see Appendix I to this document, "An Uneasy Exploration of External Degree Programs" (by David E. Mathieson).

130. KREPLIN, Hannah. *Credit by Examination: A Review and Analysis of the Literature.* Berkeley: Ford Foundation Program for Research in University Administration, Paper P-20, July 1971. 86 pp.

Focuses on "appropriateness of various subject matter to credit by examination, attitudes toward credit by examination, results for students, financial costs and benefits, patterns

of examination, design, and administration" (from Walkup).

131. SHARON, Amiel T. *College Credit for Off-Campus Study.* Report 8 of the ERIC Clearinghouse on Higher Education. Washington: The George Washington University, March 1971. 15 pp.

Reviews the literature "on ways in which students learn outside the classroom and the manner in which such learning can be translated into college credits" (from Walkup).

132. FLETCHER, Marjorie Amos (comp.). *The Open University, The External Degree, and Non-Traditional Study: A Selected Annotated Bibliography.* Bryn Mawr, Pa.: The American College of Life Underwriters (270 Bryn Mawr Ave.), 1972. Single copies available free.

A compilation of 78 items from a wide variety of sources, motivated by "the College's own considerable and continuing interest in published materials on various ways of meeting the special learning needs of adults." Many of the annotations are brief one-liners, but some are quite extensive.

133. *CLEP Columns.* Published by the College-Level Examination Program, College Entrance Examination Board, 888 Seventh Ave., New York, N.Y. 10019.

Monthly newsletter to keep interested persons informed of developments in the College-Level Examination Program.

134. *Brainsharing: A Systems Concept of Independent Learning at the College Level.* (Promotional catalog of Future Resources and Development, Inc., 49 John St., Southport, Conn. 06490.)

FRD is staffed by various officers of the Academy for Educational Development (Alvin C. Eurich, Sidney Tickton, Rexford G. Moon, Jr.) and offers course packages designed to prepare the learner for CLEP examinations. "Each FRD course system provides a comprehensive Learning Guide, with audio cassette tapes, reference books and a variety of supplemental learning materials. Each lesson in the course has well defined performance objectives and pre-tests and post-tests complete with answers which enable the student to set his own pace and have a measure of achievement." The FRD course systems are offered to institutions as a means of substantially reducing costs by encouraging S/T-P learning.

135. *External Degree Program Newsletter.* SURC Policy Institute, 109 Roney Lane, Syracuse, N.Y. 13210.

Published monthly since July 1971, this free four-page newsletter provides information on the latest developments of the 5-county Central New York Planning Consortium that is developing a program to facilitate preparation for the New York State External Degree.

136. *The Journal of the Campus-Free College.* Campus-Free College, 466 Commonwealth Ave., Boston, Mass. 02215.

Published monthly since May 1971, this free 8-12 page newsletter provides a wide assortment of lively information on the development of CFC, perhaps the most unique experiment anywhere in S/T-P learning. Also available: *A Guide to the Human Resources of Campus-Free College* (January 1972) and a continually-updated *Directory* providing information on procedures and the nationwide network of 200 Program Advisors.

137. *First Call for the Organization of the International University of the World.* A 16-page prospectus available from I.U.W., c/o James J. Lynch, 16 Westview Road, Spring Valley, N.Y. 10977.

This proposed multi-national effort will consist of individually diagnosed and prescribed instruction, self-selected and self-directed Resident and "Away" instruction, and required foundation and research courses. Much of the prospectus consists of quotes and news items describing other S/T-P programs and the thinking of a wide variety of people. No guarantees here, but this could be an interesting experimental institution.

138. Courses by Newspaper project, University of California at San Diego. Further information from Caleb A. Lewis, Director of Special Programs, UCSD University Extension, P.O. Box 109, La Jolla, Calif. 92037.

In June 1972, the National Endowment for the Humanities awarded a grant for this pilot program that would consist of twenty 1,400 word lectures written around the theme of "The Future of Man," and appearing weekly in newspapers around the nation. The reader who enrolls for college credit will receive a special reading kit, two "contact sessions" of three hours each held at the nearest cooperating campus, and appropriate examinations.

139. Panel on Alternate Approaches to Graduate Education. P.O. Box 2607, Princeton, N.J. 08540 (I. Bruce Hamilton, Executive Secretary).

Formed in late 1971, the Panel is a joint project of the Graduate Record Examinations Board and the Council of Graduate Schools in the United States. Chaired by J. Boyd Page, President of CGS, the Panel will make an inventory of non-traditional programs and proposals at the graduate level and examine the issues arising from these innovations.

140. State of Connecticut, Committee on Alternate Approaches for the Delivery of Higher Education. Further information from Bernard Shea, Secretary, Commission for Higher Education, P.O. Box 1320, Hartford, Conn. 06101.

A question to the Committee: is higher education best thought of as a service that is "delivered," like laundry?

141. UNESCO Project on Alternative University Structures. Further information from Dr. L. Atanassian, Division of Higher Education, UNESCO, place de Fontenoy, 75 Paris-7e, France.

Among the concerns of this project are the extension of post-secondary education to persons already gainfully employed, and new methods and techniques of instruction. Case studies are being taken in several regions of the world including the USSR, Eastern Europe, Western Europe, U.K., U.S., and Canada.

142. Carnegie Commission on Higher Education

--General information and updated lists of publications available from The Commission, 1947 Center St., Berkeley, Calif. 94704
--All publications may be ordered from McGraw-Hill Book Co., Hightstown, N.J. 08520.

F. THE TRANSDISCIPLINARY APPROACH TO PUBLIC POLICY-MAKING

143. STULMAN, Julius. "The Methodology of Pattern," *Fields Within Fields...Within Fields*, 5:1, 1972, pp.7-41 (see item 21).

Despite some rambling, this is still the most concise yet comprehensive statement that can be located as concerns trans-disciplinary methodology or, as Stulman terms it, "the Methodology of Pattern."

Stulman has been advancing these ideas for more than 30 years, and speaks of an emerging Age of Energy and a Third Industrial Revolution brought about by a mankind gestalt--a new non-coercive leadership force factor, a brain resource capable of catalyzing emergent abilities, maximizing opportunities to fusion.

"The integrity of a holistic development can bring into being a systems approach capable of creatively integrating all relevant requirements to a given problem, bringing them to a recreative organismic development, continuously integrating, designing and redefining all factors concerned, with an integrity of wholeness, to a value sense, not the least of which is man's symbiotic interplay in the ever-changing relationships of its continued movement" (p.9).

"The methodology is so revolutionary that word-symbols to communicate the observations of an organismic feedback of multiple, cross-catalytic dimensions are incapable of being sufficiently grasped by those singularly oriented, by slow-moving, fixed relational feedbacks" (p.25).

"Our present leaders have been unresponsive to the cyclical movements of civilization and not adequately aware of the opportunities that could serve them best; nor have they

sufficiently regarded the needs of oncoming generations. If man viewed his problems with a responsible integration, we would not have brought about the environmental difficulties we have today" (p.24).

Stulman goes on to provide eight problem-solving criteria that are necessary for our times (p.27), approaches to solving demographic, food, and medical problems through the Methodology of Pattern, and an elegant statement of what education today should be: interdisciplinary, symbiotic with new technologies, teaching us to grow whole, etc. (p.31).

Of particular relevance to S/T/C-P learning is the assertion that "Knowledge is a mankind heritage and must be available to man everywhere at all times so that he may continue to participate in freedom, capable of questioning on an equal basis the factors involved in the decisions affecting mankind" (p.31). Such a condition is quite distinct from pre-packaging knowledge in "instructional programs" that are only available to some people.

144. DE JOUVENEL, Bertrand. *The Art of Conjecture.* Translated from the French by Nikita Lary. N.Y.: Basic Books, 1967. 307 pp. (First published by Editions du Rocher in 1964.)

An authoritative discussion of "the customs of the mind in its commerce with the future," covering predictions, ways of conceiving the future, and quantitative predictions. The last chapter advocates "a surmising forum" as "a necessary response to a growing demand for forecasts."

145. BAIER, Kurt and Nicholas RESCHER (eds.). *Values and the Future: The Impact of Technological Change on American Values.* N.Y.: The Free Press, 1969. 527 pp. Bib., pp.472-512.

17 essays aimed "toward the discovery of ways of guiding social change in directions which are at the least not incompatible with the realization of our deepest values, and perhaps even helpful to it" (p.v). Some groundwork is laid for a new profession of "value impact forecasters," especially via methodological pieces by Rescher, Gordon, and Helmer. The other essays are largely focused on economics, and the editors readily confess the weakness of excluding views by anthropologists, sociologists, and psychologists. There are two bibliographies: the first lists 300 uncategorized items on technological progress and future-oriented studies; the second offers about 500 categorized items on theory of value.

146. MARTINO, Joseph P. (ed.). *An Introduction to Technological Forecasting.* World Future Society Book Series. N.Y.: Gordon & Breach, June 1972. $9.50; $5.50 paper.

A selection of the best writings in the field by the Technological Forecasting Editor of *The Futurist.*

147. AYRES, Robert U. *Technological Forecasting and Long-Range Planning.* N.Y.: McGraw-Hill, 1969. $12.50.

148. POLAK, Fred L. *Prognostics: A Science in the Making Surveys and Creates the Future.* N.Y.: Elsevier, 1971. 425 pp.

Discussion of dogmatic attitudes of mind toward the future and prognostics as a modern and flexible way to face the future.

149. POLAK, Fred L. *The Image of the Future: Enlightening the Past, Orienting the Present, Forecasting the Future.* Volume One (*The Promised Land, Source of Living Culture,* 456 pp.) and Volume Two (*Iconoclasm of the Images of the Future, Demolition of Culture,* 376 pp.). Leyden (The Netherlands): A. W. Sijthoff, 1961; N.Y.: Oceana, 1961. Translated from the Dutch by Elise Boulding (abridged translation, also by Boulding, to be published by George Braziller in 1972.)

"Argues that all major systems of history that have been en vogue during the last few centuries are incomplete in their time concepts. Hegel, Spengler, Schubart, Toynbee, Sorokin . . . regard the time flow as consisting of past and present only . . . The possible or probable future is for a considerable part already visibly here today. It is foreshadowed by the people's chosen images of the future . . . A modern and progressive restatement of what has been called the 'prophetic' approach to history" (book jacket abstract).

150. DROR, Yehezkel. *Public Policy-Making Re-examined.* San Francisco: Chandler, 1968. 370 pp.

An authoritative work discussing contemporary policy-making and proposing an optimal model characterized by rational and extrarational components. See Chapter 17, "Changes Needed in Knowledge" (and especially notes on policy science, pp-240-245); also discussion in Chapter 19 on organizations for policy analysis. Excellent bibliographic essay, pp.327-356.

151. DROR, Yehezkel. *Ventures in Policy Sciences: Concepts and Applications.* N.Y.: American Elsevier, 1971. 321 pp.

Especially useful for linking futures studies and general systems theory to desired improvements in public policy-making.

152. DROR, Yehezkel. *Design for Policy Sciences.* N.Y.: American Elsevier, 1971. 156 pp.

Focuses on the improvement of policy-making through the new scientific paradigms of policy sciences.

153. LASSWELL, Harold D. *A Pre-View of Policy Sciences.* N.Y.: American Elsevier, 1971. 173 pp.

154. HELMER, Olaf. *Social Technology*. N.Y.: Basic Books, 1966. 108 pp.

Discussion of Delphi technique and presentation of results from 1964 RAND study. "Social technology" proposed as an intellectual discipline in its own right, enabling "regular and systematic exploration and collation of expert opinion on the future, so that latest findings can be available to decision-making authorities."

155. LASZLO, Ervin. *The Systems View of the World: The Natural Philosophy of the New Developments in the Sciences*. N.Y.: George Braziller, 1972. 131 pp. $2.45 paper.

Introduction to systems thinking, as contrasted with atomistic thinking.

156. HIRSCH, Werner Z. and Colleagues. *Inventing Education for the Future*. San Francisco: Chandler Publishing Co., 1967. 353 pp.

19 articles arising from the 1965-66 Educational Innovations Seminar at UCLA. Largely concerned with methodology of planning and future-casting, and methods of introducing change.

157. ZIEGLER, Warren L., with the assistance of Michael MARIEN. *An Approach to the Futures-Perspective in American Education*. Syracuse: Educational Policy Research Center, May 1970. 103 pp.

A synthesis of the attempts to define alternative educational futures in the U.S., discussing the idea itself and the various methodologies in the macrosystem context of the educating domain, or "the education complex" (which includes the "periphery" of adult education, suppliers to educating institutions, and organized beneficiaries--especially students). Five planning models are discussed: the future-as-the-present, the future-as-an-extrapolation-of-the-present, the single alternative future, the technological future, and the comprehensive future. Problems in the polity, in policy-formulation, and in planning are discussed, and the document is concluded with two critiques by outsiders.

158. MARIEN, Michael and Warren L. ZIEGLER (eds.). *The Potential of Educational Futures*. Worthington, Ohio: Charles A. Jones, Fall 1972. About 120 pp.

15 brief essays divided into sections concerning Modes of Viewing the Future, Applications of the Futures Perspective in Planning, Applications of the Futures Perspective in Teaching, and The Future of Educational Futures. Especially see "Long-Range Societal Futures" by Willis W. Harman (Director of the Stanford EPRC) and "Converging Concerns of Futurists and Planners: Changing Viewpoints in Educational Planning in the OECD Area" by Maureen M. Webster.

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